



**Innovation In and  
Out of Parlour**

## **Out Of Parlour M5 Installation**

Version - 1.0

Date - September 2021

**Part Number - 39-0302**



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## Manual Versions

Version 1.0 - September 2021.....First Version of Manual (Control Firmware v1.18)



## About the Out of Parlour M5 Feeding System

The Out Of Parlour M5 feeding system allows the user to control the feeding of an entire herd, group or down to the individual animal level. The simple control interface is accompanied by connections to the ATL Cowculator M5 PC software and to the ATL App to allow more complex control options.

### Control Features

- Programmable settings to be optimised for every feeding layout;
- Large LED display showing information easily;
- Full numeric key pad, allowing easy entry of information;

**IMPORTANT:** For Out-Of-Parlour Systems with spacing between any or all of the feeder stalls. Please contact ATL for special wiring instructions.



## Good Practice when installing the feeding system

### Mains Supply

A clean 230 volt 50Hz AC mains supply together with a sound earth is essential for trouble-free feeding management. Although ATL power supplies incorporate several advanced mains protection features, time spent installing a good mains source will be very beneficial.

- A separate mains supply and earth running directly from the customers distribution board is essential.
- Avoid routing the mains cable to the power supply close to other supplies especially those providing intermittent current- motors that are starting and stopping continually or high power heaters with thermostatic control.
- The supply must be capable of providing at least 10A peak and 5A continuous and the cable should be rated at 13A minimum.
- Terminate in a sealed, fused, double pole switched outlet fitted with a 5A anti-surge fuse or contactor.
- A 13A - 3 pin ring mains socket is not suitable for Out Of Parlour conditions. All mains cabling must be contained within a firmly secured, durable conduit.
- All mains work should be referred to a Qualified Electrician.

### Power Supply: Siting

ATL power supplies are designed to cope with arduous conditions and are protected with fuses and a thermal cutout, but like any other power supply they can become warm when under load. Good ventilation is very important - with means careful siting.

- Fix the power supply to a wall or suitable brackets in a well ventilated area sufficiently high to avoid physical contact or damage, leaving a gap of at least 250mm (10") between the top of the power supply casing and the ceiling.
- Position the power supply so that the output (low DC voltage) cables are as short as possible even if this means extending the mains supply.

### Power Supply: Output Voltages.

ATL power supply outputs are factory set and should not be adjusted. For a 230volt mains supply the DC output should be with 4 Feeders Running: Nominal 12.5 volts. This is often referred to as the 12volt Regulated line.

The power supply contains short-circuit protection, and additionally, there is a thermal cutout which will remove power from the feeders in the event of a over temperature. It may take several minutes for the supply to be restored if the cutout does operate.

There are two indicators fitted to the base of the power supply casing; red indicates that the mains is present and green that the supply is available.

### Control, Cables and Conduit.

- Entries must be made into the bottom of power supply or control casings but never into the top. This will invalidate the warranty.
- Keep data cables away from other cables especially those carrying mains or heavy currents. Cross only at 90° where necessary and do not enclose in conduit with other cables.



## Good Practice continued

### Data Cables

The data cable supplied is 'twisted pair' configuration especially designed for communications. No other cables should be used as replacements. Ensure it is connected exactly as shown in the diagrams and keep the cable run as short as possible.

- Do not run near or parallel to, or cross over AC mains supplies or wires carrying switched current (i.e. milk pumps).
- Generally avoid fluorescent lighting or radio wave sources.
- Ideally, data cable should be run through a suitable conduit by itself, especially if it is exposed to the weather. Sharing conduit with power wires invariably corrupts data and causes degradation of the system performance.

### Out-Of-Parlour Interface and Feeder Cables:

Sufficient co-axial cable is provided to wire the stall antennas to the Out-Of-Parlour Interface.

- Cable entries into control box MUST be made through the glands provided. Never cut new entries into the top or sides of the casing. This will automatically invalidate any warranties.
- ALWAYS use the correct csa (cross sectional area) cable specified in the diagrams.

### Environmental Considerations

ATL Out Of Parlour Control equipment is built to the highest specifications to give faithful and reliable service for years and years. However, it could deteriorate prematurely if a few simple steps are not taken to safeguard it.

- Good ventilation is essential. Fresh air is not only good for animals but also dissipates the highly corrosive gases produced by silage, slurry, and some feedstuffs
- Position Out Of Parlour stalls where there is plenty of air movement. Stale air will collect in enclosed corners of even large buildings. Exposed concentrates will deteriorate rapidly where ventilation is inadequate. Air circulation can be improved by replacing some of the sheeted cladding with Yorkshire Boarding.



### About the ATL Out-Of-Parlour System

The high-speed scanning system addresses each stall in turn seeking a valid ear tag read and so makes any other form of animal detection unnecessary. Each system contains one (1) Interface for every 4 feeders, a ATL Micro M5 Control unit, a power supply and a varying number of stalls depending on system size. Only 1 reader is required per system and this is normally located in the Interface for feeders 1-4.

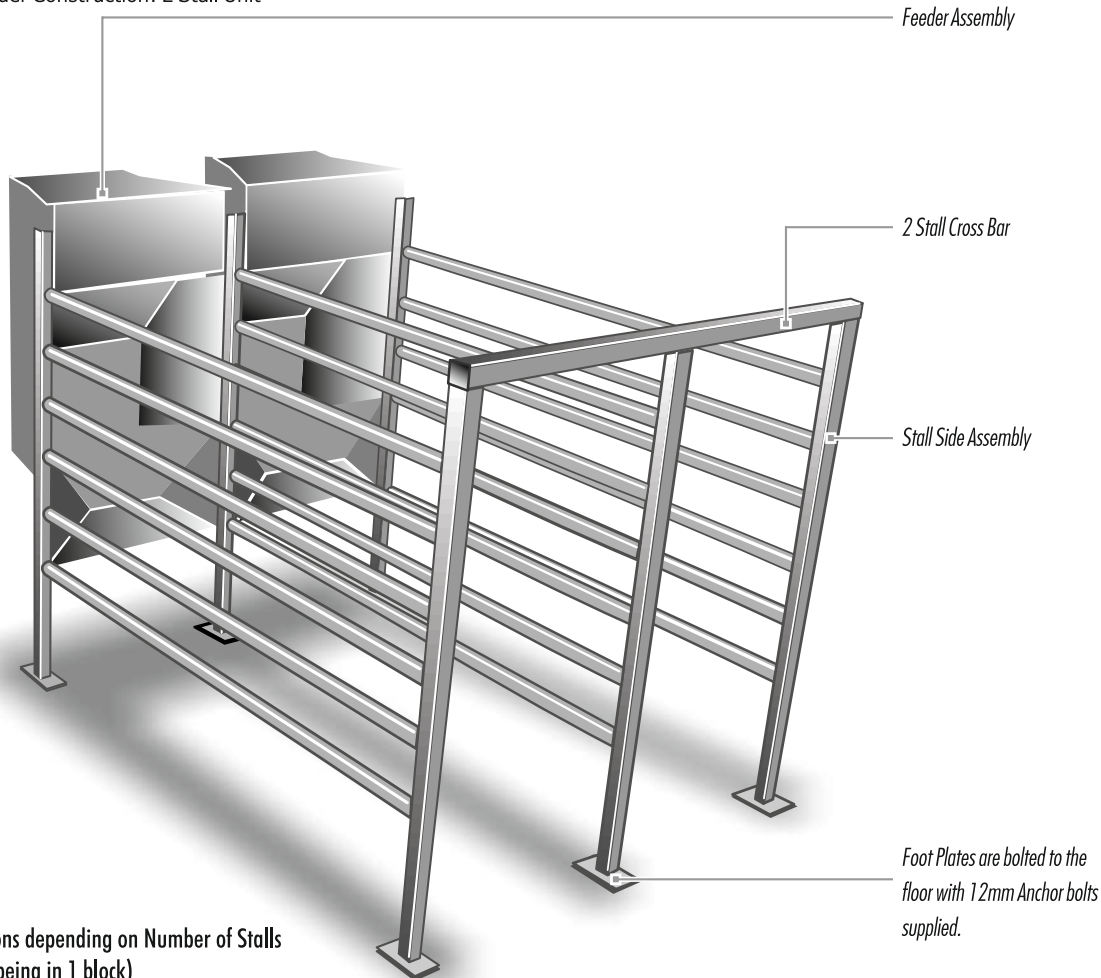
The Interface contains all of the electronics to detect the presence of an ear tag in a stall, relay that information back to the Console unit, receive the ration allocation from the Console and drive the appropriate stall feeder. It can provide the tag reading facility for almost any number of stalls providing they are not too widely spaced (50 metres absolute maximum) and drive the first 4 feeder motors. For additional stalls extra Interfaces are required each capable of driving up to 4 feeders. Systems which have second feeders (B) are fitted with an additional components on the PCB to the second feeders.

The ATL Micro M5 Control stores the herd data and controls the feeding process. It must be connected for the system to operate. Generally, the control would be in the parlour, however it can be located in an office. The control may be connected to the feeder stalls by up to 100 meters of special data cable. Power is derived from a small power supply that is plugged into a standard 13amp mains socket (230v AC) in the office environment.

## Stall work and Feeder Assembly

- The feeders are fitted to the rear of the stall work; cows enter from the front.
- All of the stall work is delivered separately from the feeders and electronics.
- Stand 2 end rails upright, position front cross bar across top and loosely bolt.
- Then position intermediate rails and loosely bolt.
- Square up the assembly and finally tighten the bolts.
- Position the stall work accurately on the concrete base leaving sufficient access to the sides and rear to fit the feeders and for future maintenance.
- Drill through the fixing holes in the Foot Plates and secure the whole assembly using the 12mm Anchor Bolts provided.

Stall and Feeder Construction: 2 Stall Unit



Crossbar Variations depending on Number of Stalls  
(based on stalls being in 1 block)

= 1 Stall Crossbar   
 = 2 Stall Crossbar   
 = Stall Linking Bar

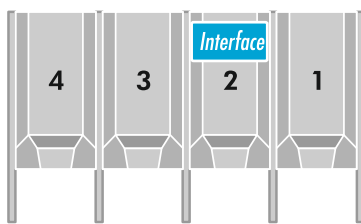
1 Stall Unit	2 Stall Unit	3 Stall Unit	4 Stall Unit	5 Stall Unit	6 Stall Unit	7 Stall Unit	8 Stall Unit
x 1	x 1	x 2 x 1	x 1 x 1 x 1	x 2 x 1	x 2 x 1 x 2	x 1 x 2 x 2	x 3 x 2
9 Stall Unit	10 Stall Unit	11 Stall Unit	12 Stall Unit	13 Stall Unit	14 Stall Unit	15 Stall Unit	16 Stall Unit
x 2 x 2 x 3	x 1 x 3 x 3	x 4 x 3	x 2 x 3 x 4	x 1 x 4 x 4	x 5 x 4	x 2 x 4 x 5	x 1 x 5 x 5

## Stall / Block Layouts

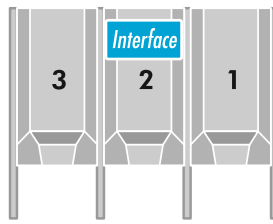
The feeder motors turn a single revolution at each pulse from the Out-Of-Parlour Interface to deliver a predetermined portion of cake with a delay between each 'drop'. This 'small and often' arrangement ensures that the cow does not 'bolt' her feed, discourages bullying, and prevents a build-up of uneaten feed. Feeder motor and auger must be fitted as an assembly to guarantee proper 'parking' and minimise 'dribble'.

The diagrams below show the position of the Interface in various stall layouts; in all the arrangements the Out-Of-Parlour Interface is mounted with pre-fitted fixings.

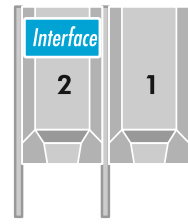
**IMPORTANT - THE FEEDERS ARE NUMBERED RIGHT TO LEFT LOOKING FROM THE REAR.**



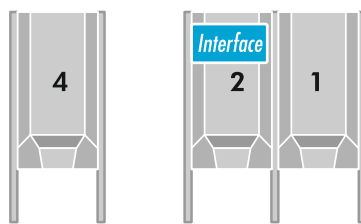
4 Stalls in line:



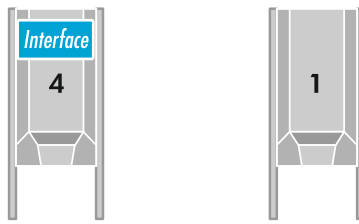
3 Stalls in line:



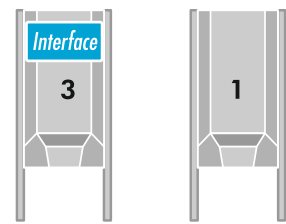
2 Stalls in line:



3 Stall close staggered:

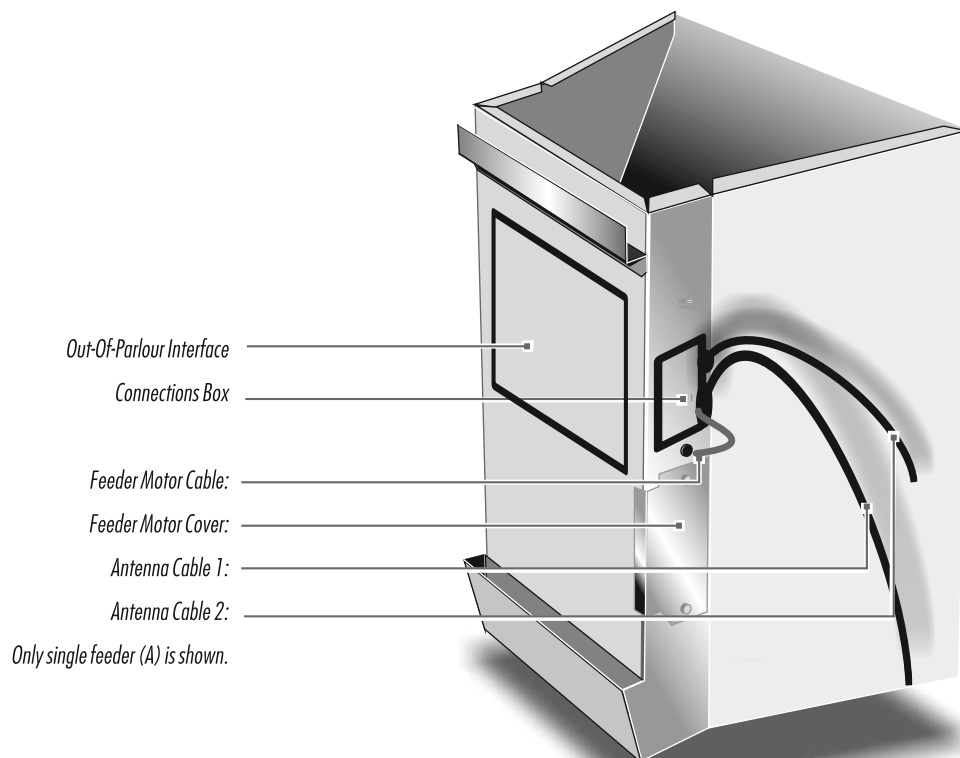


2 Stall wide stagger (Special order wiring):



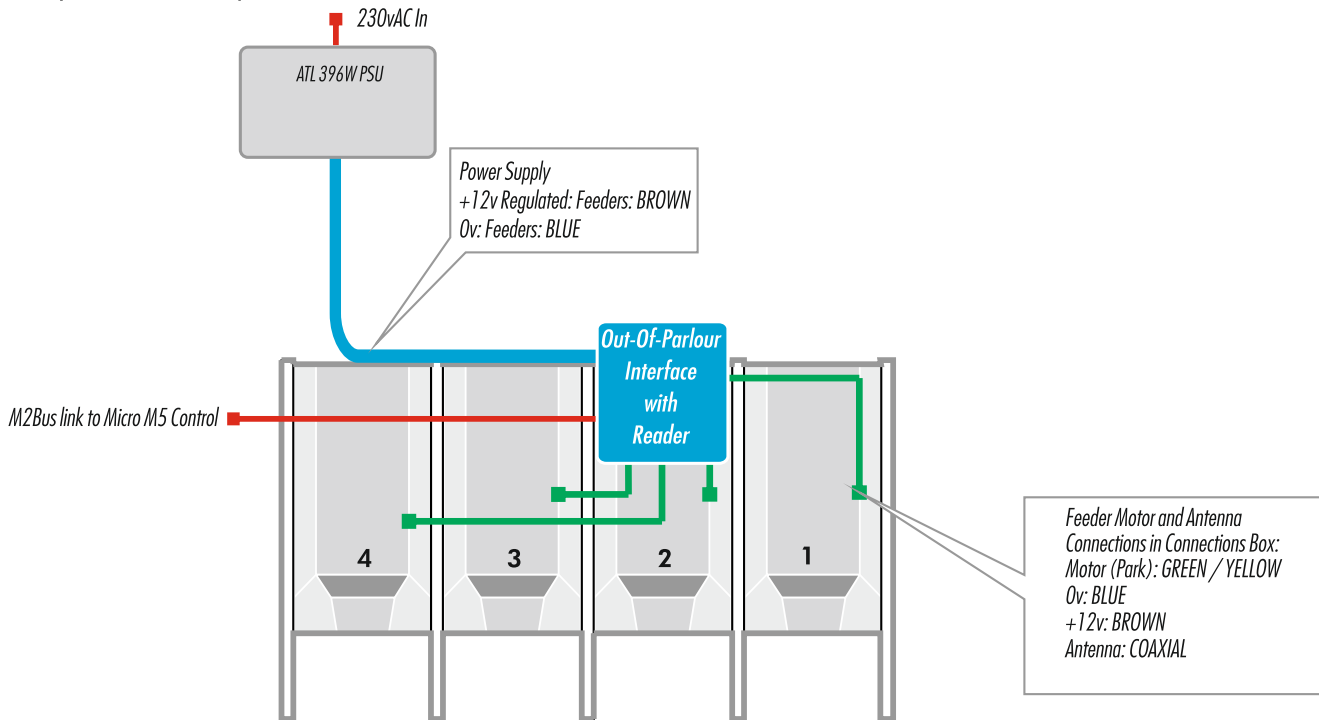
2 Stall close stagger:

## The Out Of Parlour Feeder

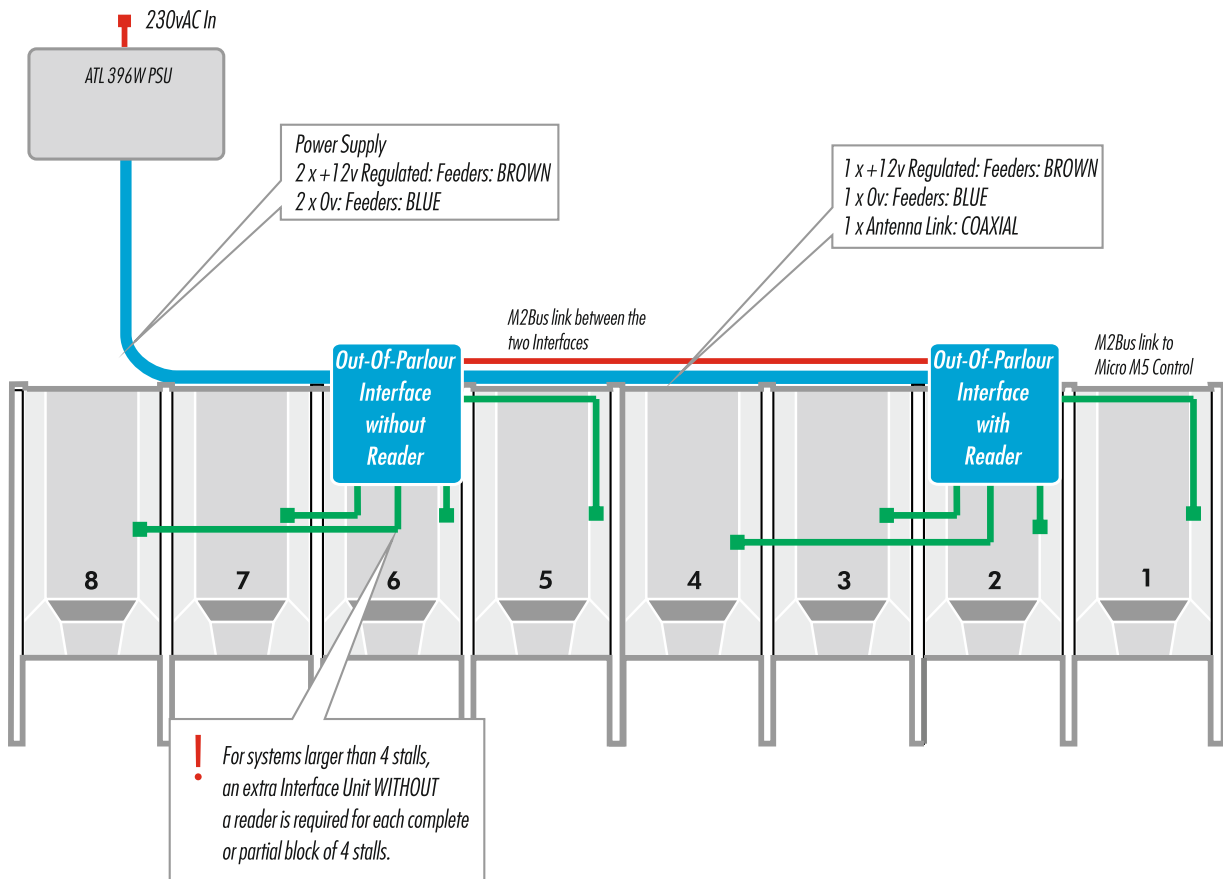


## System Interface Sitting

Systems with upto 4 stalls



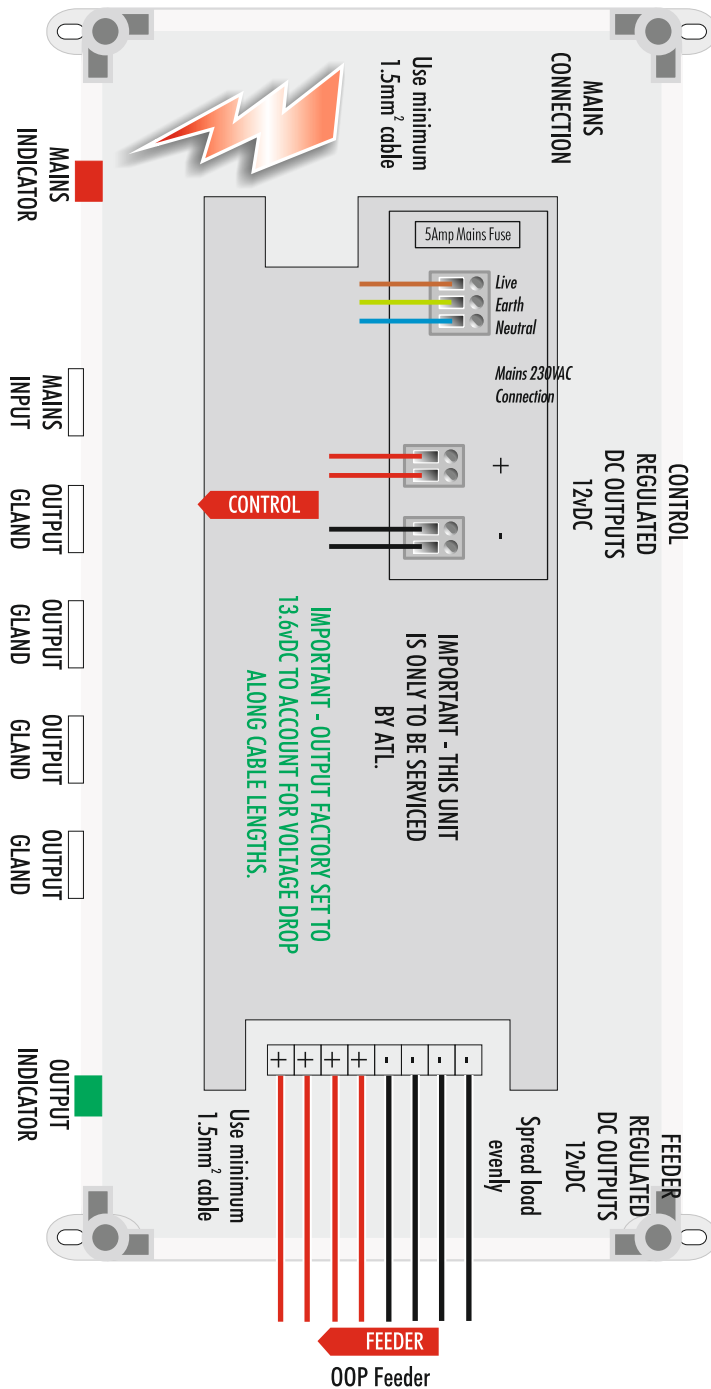
Systems with 5 or more stalls



## System Power Supply

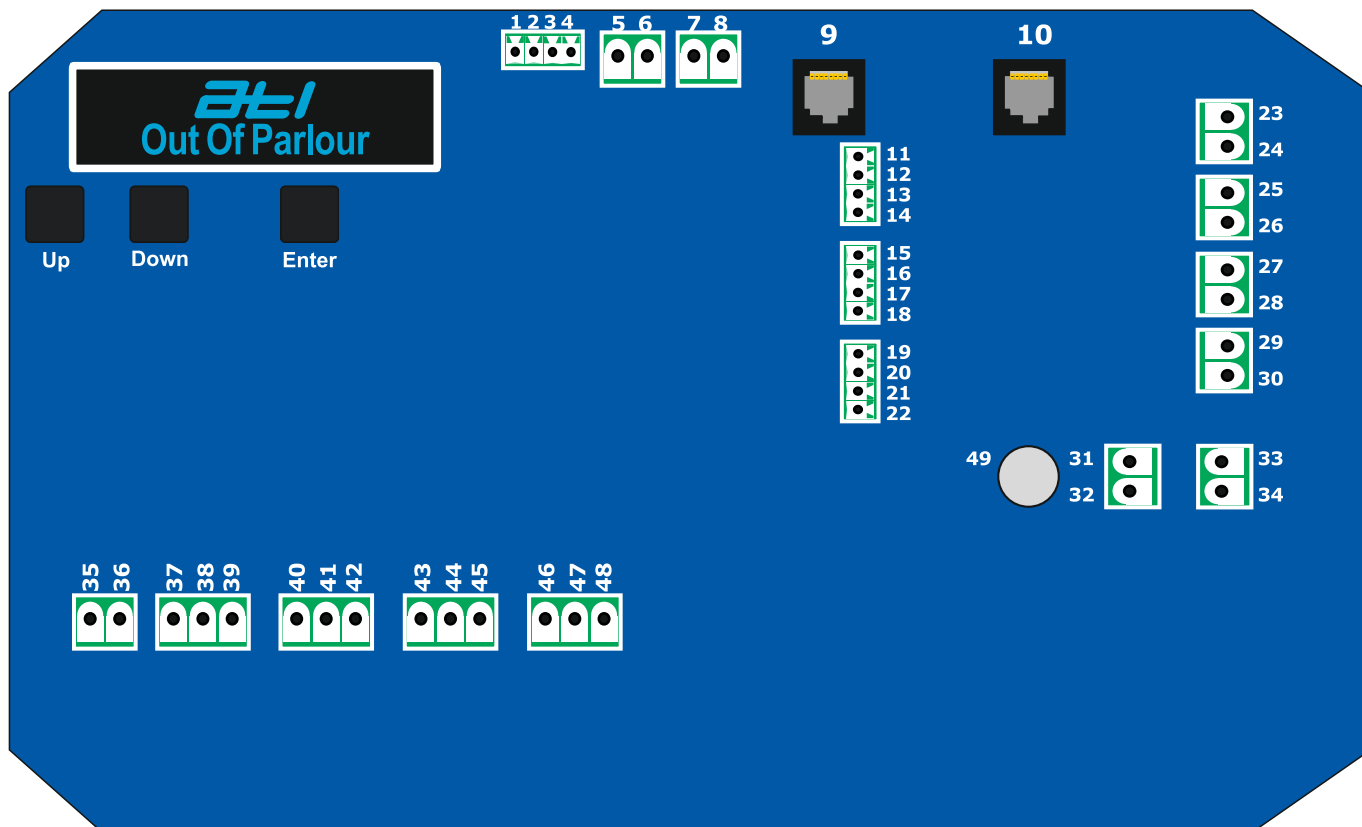
Type: 396 Watt 12v DC

- Input: Mains Voltage 230volt AC
- Input Fuse: 5 Amp - 20mm
- Output: Nominal 13.6volt DC



## Interface PCB Wiring Connections

The Interface PCB wiring connections are shown in the diagram and table below.



Number	Connects To	Cable Specification
1 - 4	ATL HDX Reader	Factory Fitted by ATL
5	Alternate Power In 0vDC	Only Connect When Instructed by ATL
6	Alternate Power In +12vDC	Only Connect When Instructed by ATL
7	Reader Power Out 0vDC	0vDC to Reader (Factory Fitted)
8	Reader Power Out +12vDC	+12vDC to Reader (Factory Fitted)
9	M2Bus Cat5e - Plug 1	M2Bus Cat5e Cable
10	M2Bus Cat5e - Plug 2	M2Bus Cat5e Cable - Powered
11, 15, 19	Data A	Twisted Pair - White
12, 16, 20	Data B	Twisted Pair - Green
13, 17, 21	EOL Link	Only Connect When Instructed by ATL
14, 18, 22	Screen	Twisted Pair - Screen
23	Antenna 1 Screen	Coax Cable - Screen
24	Antenna 1 Core	Coax Cable - Core
25	Antenna 2 Screen	Coax Cable - Screen
26	Antenna 2 Core	Coax Cable - Core
27	Antenna 3 Screen	Coax Cable - Screen
28	Antenna 3 Core	Coax Cable - Core

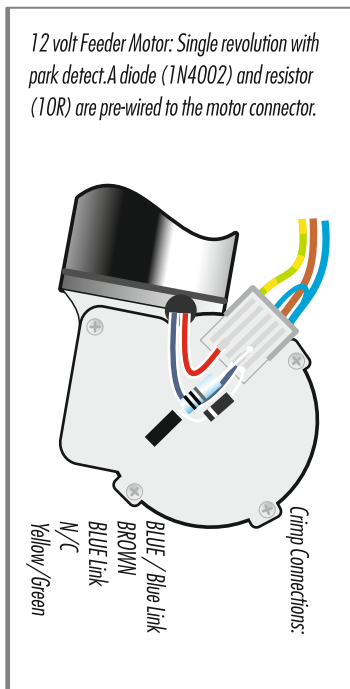


## Interface PCB Wiring Connections Continued

Number	Connects To	Cable Specification
29	Antenna 4 Screen	Coax Cable - Screen
30	Antenna 4 Core	Coax Cable - Core
31	RF In From Other Stalls - Core	Coax Cable - Core
32	RF In From Other Stalls- Screen	Coax Cable - Screen
33	RF Out To Other Stalls - Core	Coax Cable - Core
34	RF Out To Other Stalls - Screen	Coax Cable - Screen
35	Feeder Power In 0vDC	Black 1.5 CSA from PSU
36	Feeder Power In +12vDC	Red 1.5 CSA from PSU
37	Feeder Output 1 Park	3 Core - Earth
38	Feeder Output 1 Negative	3 Core - Neutral
39	Feeder Output 1 Positive	3 Core - Live
40	Feeder Output 2 Park	3 Core - Earth
41	Feeder Output 2 Negative	3 Core - Neutral
42	Feeder Output 2 Positive	3 Core - Live
43	Feeder Output 3 Park	3 Core - Earth
44	Feeder Output 3 Negative	3 Core - Neutral
45	Feeder Output 3 Positive	3 Core - Live
46	Feeder Output 4 Park	3 Core - Earth
47	Feeder Output 4 Negative	3 Core - Neutral
48	Feeder Output 4 Positive	3 Core - Live
49	RF In BNC from Reader	Factory Fitted by ATL

## Antenna and Motor Interface PCB Connections

### ATL Motors



### Connecting the Feed Stations to the Out-Of-Parlour Interface

Cables are pre-fitted from the Antennas (black coaxial) and the Feeder Motors (white 3-core sheathed) into each stall's Connector Box. Start with Stall (1) on the extreme right when viewed from the rear and work toward Stall (4).

Measure and cut the same lengths of co-axial and 3-core cable to fit from the Connector Box to the Interface; running the cable up the side and along the top of the stalls and through the small glands in the left hand side of the Interface Unit. Use the lowest pair of glands for Stall(1) and work upward.

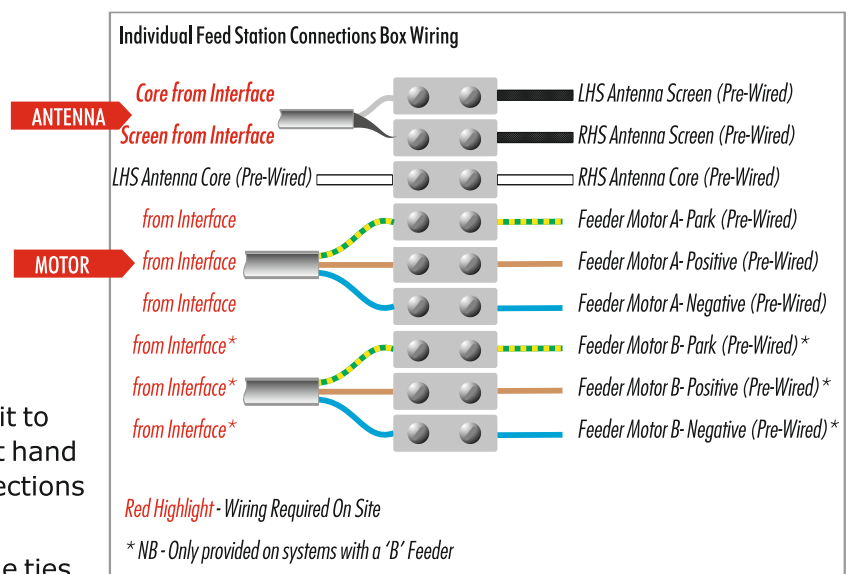
#### Inside the Interface:

Trim the Antenna Coaxial and bare the ends. It is important that the screen wires are twisted securely together and there are no 'stray' strands that might cause short circuits.

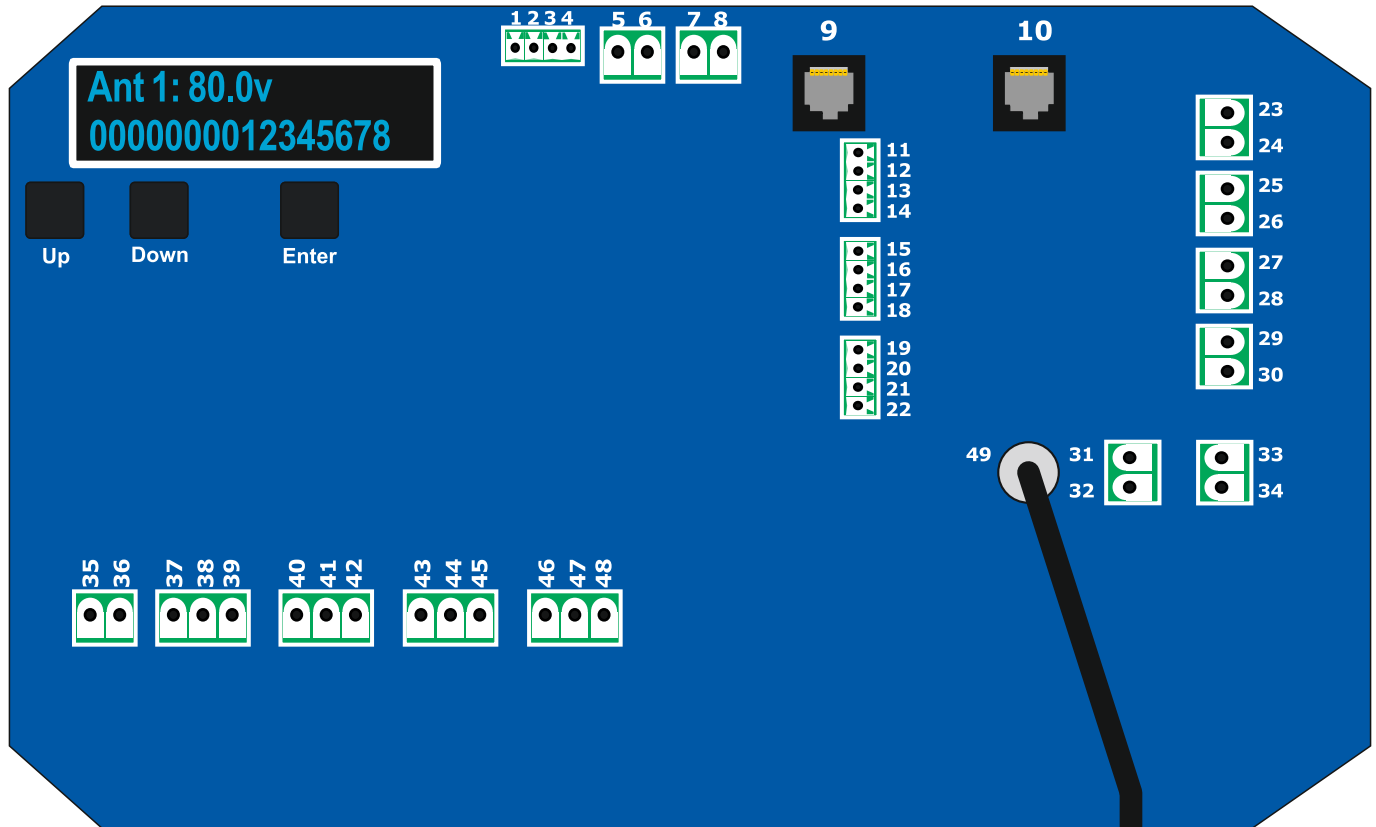
Fit the core and screen to the appropriate Antenna connector (bottom left on the circuit board) making sure they are correctly orientated. Screens and cores cannot be inter-changed.

Trim and strip the Feeder Motor cable and fit it to the appropriate Feeder connector on the right hand side of the circuit board. Check that the connections are correct.

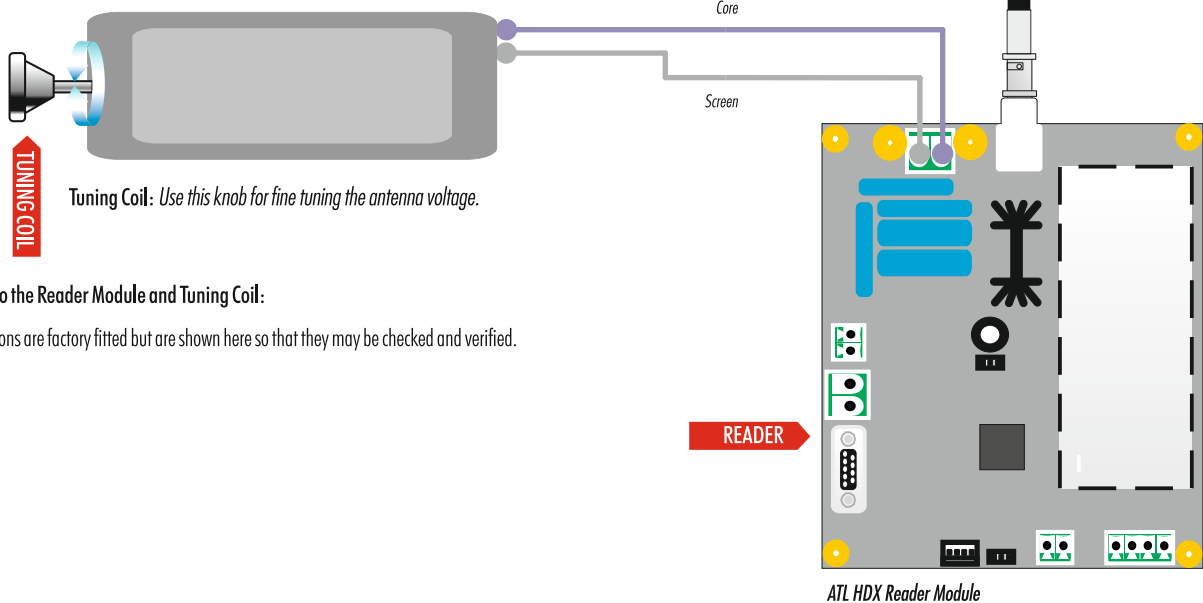
Tidy the cables and secure them with the cable ties.



## ATL Reader Connection



The connections between the Reader the Tuning Coil and the circuit board are Coaxial cable. They are shown single and coloured here for clarity but the screens and cores must go to the connections shown.



### Connections to the Reader Module and Tuning Coil:

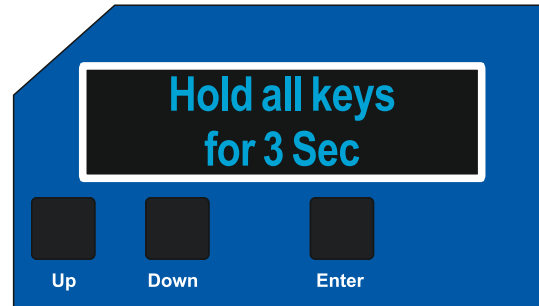
These connections are factory fitted but are shown here so that they may be checked and verified.

## Setting up the Interface

Before it can be used, the system must be setup. This is outlined in the following pages:

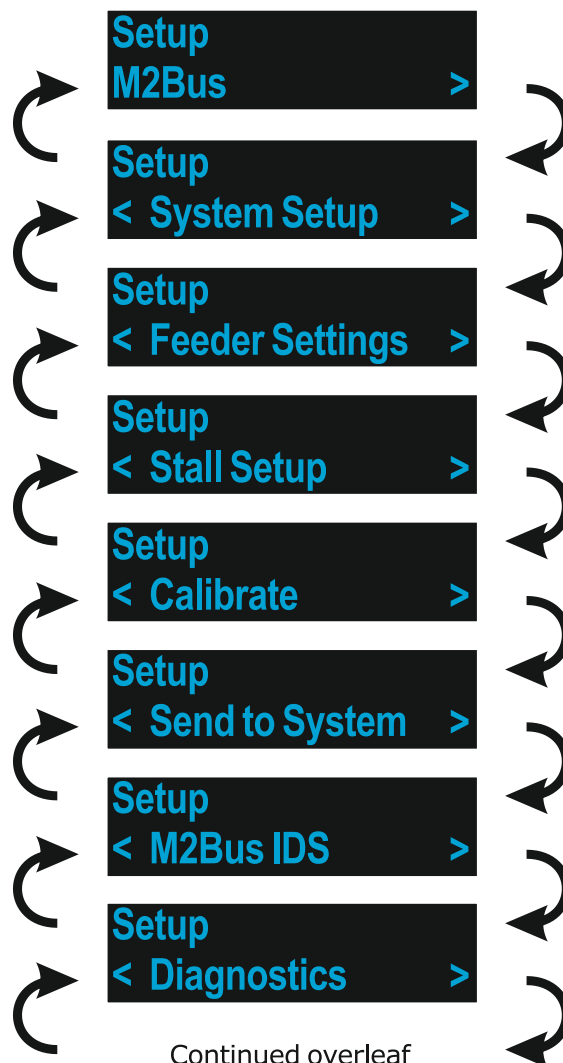
### Accessing the Settings

Press and hold all the keys for 3 seconds, the settings menu will be displayed after 3 seconds.

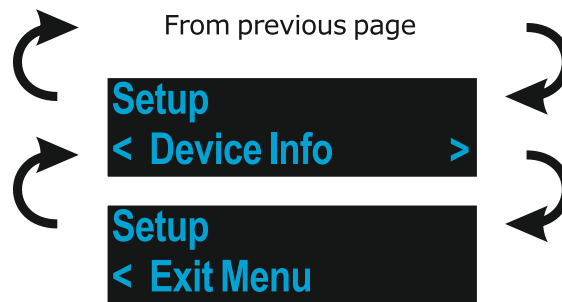


### The Setup Menu

The setup menu is divided into sections, each section deals with a specific part of the interface. The sections can be stepped through using the Up and Down keys, and accessed using the Enter key.



## The Setup Menu Continued



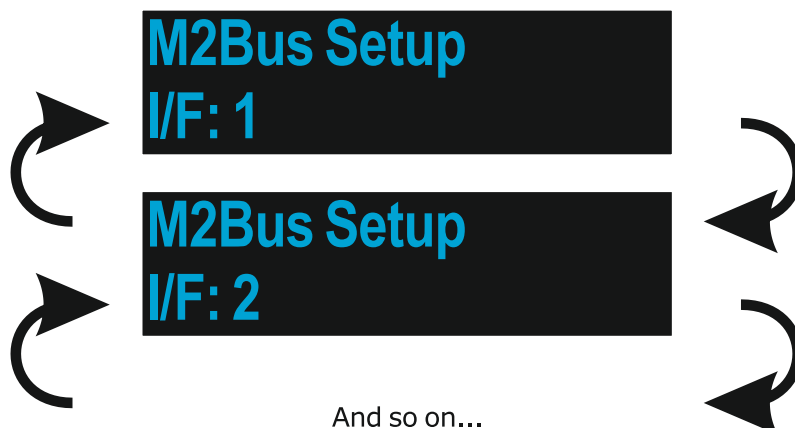
Pressing the Enter key when on a menu item will allow the user to enter the menu item.

## The M2Bus Menu

The M2Bus menu contains the settings controlling the M2Bus communications bus. There are a number of settings, each listed in the following pages.

### The Interface Number Setting

The interface number setting is the unique interface address. Each interface must have a different number for the communications bus to function and data to be transferred correctly. The range is 1 to 255. The factory default is 1.



Press the Up key to increase the address. Hold the Up key to increase in 10s

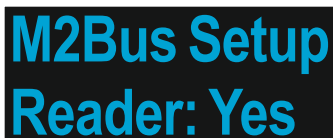
Press the Down key to decrease the address. Hold the Down key to decrease in 10s

When the correct setting is selected, press the Enter key to store the address.

The next menu item is now displayed.

### The Reader Setting

The reader setting is a YES / NO setting. When set to YES, this interface will control the scanning of stalls which are in the same reader group as this units interface address, it will also enable power on the reader power output.



The image shows a menu screen with the text 'M2Bus Setup' and 'Reader: Yes'.

Press the Up key to enable the setting.


Press the Down key to disable the setting.

When the correct setting is selected, press the Enter key to store the data.

The next menu item is now displayed.

## The Reader Group Setting

The reader group setting allows the user to set the reader group which this interface belongs to. This will allow the system to correctly organise scanning of stalls based on which interface and reader are responsible for the identification on the stalls. The majority of systems will only have 1 reader, therefore this should be left set to 1; Otherwise, this should be set to the interface number which has the reader connected to it which will scan the stalls on this interface.



M2Bus Setup  
Group: 1

Press the Up key to increase the value. Hold the Up key to increase in 10s

Press the Down key to decrease the value. Hold the Down key to decrease in 10s

When the correct setting is selected, press the Enter key to store the data.

---


## The System Setup Menu

The System Setup menu contains the settings controlling the configuration for the whole system. There are a number of settings, each listed in the following pages.

---

### The Number of Stalls Setting

The number of stalls in total on the system. This setting allows the system to correctly organise polling of antennas for animal identifications.



System Setup  
Stalls: 1

Press the Up key to increase the stall count. Hold the Up key to increase in 10s

Press the Down key to decrease the stall count. Hold the Down key to decrease in 10s


When the correct setting is selected, press the Enter key to store the stall count.

The next menu item is now displayed.

---

### The Default Feed Setting

The default feed setting is the feed which is fed to feeders operating in a pulsed or timed configuration.



System Setup  
Default Feed: 200

Press the Up key to increase the amount. Hold the Up key to increase in 10s

Press the Down key to decrease the amount. Hold the Down key to decrease in 10s

When the correct setting is selected, press the Enter key to store the value.

The next menu item is now displayed.





## The Buzzer Setting

The buzzer setting is a YES / NO setting.

**System Setup  
Buzzer: Yes**

Press the Up key to enable the setting.

Press the Down key to disable the setting.

When the correct setting is selected, press the Enter key to store the data.

The next menu item is now displayed.

---

## The Cat5e Pwr Setting

The Cat5e Pwr setting is a YES / NO setting..This setting controls whether power is available from the M2Bus Cat5e connector number 10 (See page 12 for connector numbering).

**System Setup  
Cat5e Pwr: No**

Press the Up key to enable the setting.

Press the Down key to disable the setting.

When the correct setting is selected, press the Enter key to store the data.

The next menu item is now displayed.

## The Feeder Settings Menu

The Feeder Settings menu contains the settings controlling the configuration for the feeders. There are a number of settings, each listed in the following pages.

---

### The Single Revolution Parking Ring Move Off Time Setting

The move off time for single revolution feeders is used to detect failed feeder motors, and to enable the proper function of single revolution (single turn) feeders. This setting is in tenths of a second, if a feeder takes more time to move off the parking ring an attention is generated.

**Feeder Settings**  
**Move Off: 50**

Press the Up key to increase the value. Hold the Up key to increase in 10s

Press the Down key to decrease the value. Hold the Down key to decrease in 10s

When the correct setting is selected, press the Enter key to store the value.

The next menu item is now displayed.

---

### The Single Revolution Parking Ring Return Time Setting

The return time for single revolution feeders is used to detect failed feeder motors, and to enable the proper function of single revolution (single turn) feeders. This setting is in tenths of a second, if a feeder takes more time to return to the parking ring an attention is generated.

**Feeder Settings**  
**Return: 100**

Press the Up key to increase the value. Hold the Up key to increase in 10s

Press the Down key to decrease the value. Hold the Down key to decrease in 10s

When the correct setting is selected, press the Enter key to store the value.

The next menu item is now displayed.

### The Pulse On Time Setting

The pulse on time setting is used for pulsed feeders, and enables the user to set a time length for the "On" period of a pulse. The setting is in tenths of a second.

**Feeder Settings**  
**Pulse On: 10**

Press the Up key to increase the value. Hold the Up key to increase in 10s

Press the Down key to decrease the value. Hold the Down key to decrease in 10s

When the correct setting is selected, press the Enter key to store the value.

The next menu item is now displayed.

---

### The Pulse Off Time Setting

The pulse off time setting is used for pulsed feeders, and enables the user to set a time length for the "Off" period between pulses. The setting is in tenths of a second.

**Feeder Settings**  
**Pulse Off: 50**

Press the Up key to increase the value. Hold the Up key to increase in 10s

Press the Down key to decrease the value. Hold the Down key to decrease in 10s

When the correct setting is selected, press the Enter key to store the value.

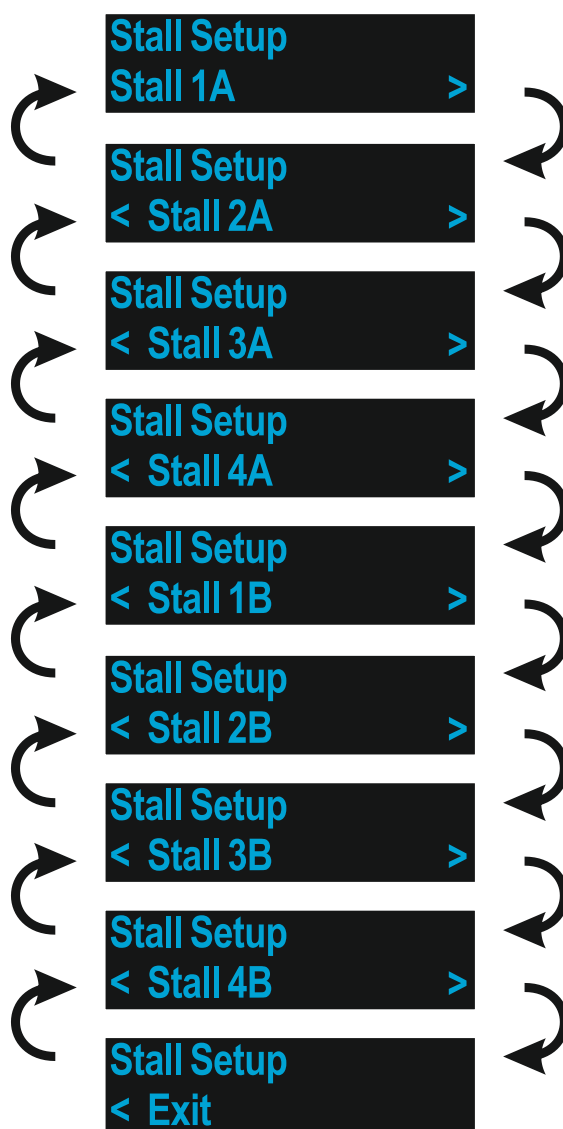
The next menu item is now displayed.

## The Stall Setup Menu

The stall setup menu allows the user to enter settings for individual feeder outputs.

## The Stall Setup Menu

The stall setup menu is divided into sections, each section deals with a specific stall.



The settings for each stall are the same, so the following pages will detail setting up stall 1A, but all settings are applicable to all stalls.

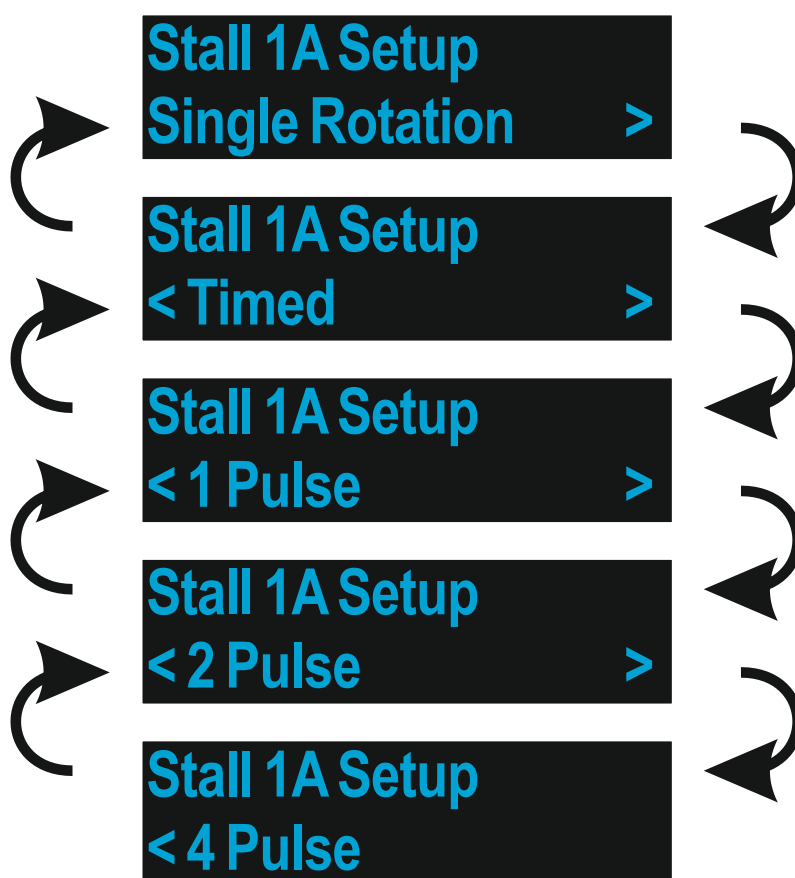
## The Feeder Type Setting

The interface outputs support 3 main types of output, with 3 pulsed types.

Single Rotation - This is the default mode for ATL Out of Parlour systems using ATL Out of Parlour feeder motors. The motor has a parking ring and the system will perform a single rotation using that facility.

Timed - The system will run a motor for a time, this is calculated using the default feed value and the feeders output calibration.

Pulse (1, 2 & 4) - The system will pulse the output using the pulse on and off times.



Pressing Enter will store the selected output type.

The fuse setting will be shown next.



## The Fuse Setting

The Fuse setting is a YES / NO setting. This will turn off attentions for the stall for electronic fuse fails, it will not stop the hardware functionality from working, but it will not report it.

**Stall 1A Setup**  
**Fuse: Yes**

Press the Up key to enable the setting.

Press the Down key to disable the setting.

When the correct setting is selected, press the Enter key to store the data.

The next menu item is now displayed.

---

## The Open Load Setting

The Open Load setting is a YES / NO setting. This will turn off detection of open loads, this functionality works by turning off the low side driver and sensing free running, some motors may not be able to work when this setting is enabled, turning off this setting will stop the detection routine running.

**Stall 1A Setup**  
**Open Load: Yes**

Press the Up key to enable the setting.

Press the Down key to disable the setting.

When the correct setting is selected, press the Enter key to store the data.

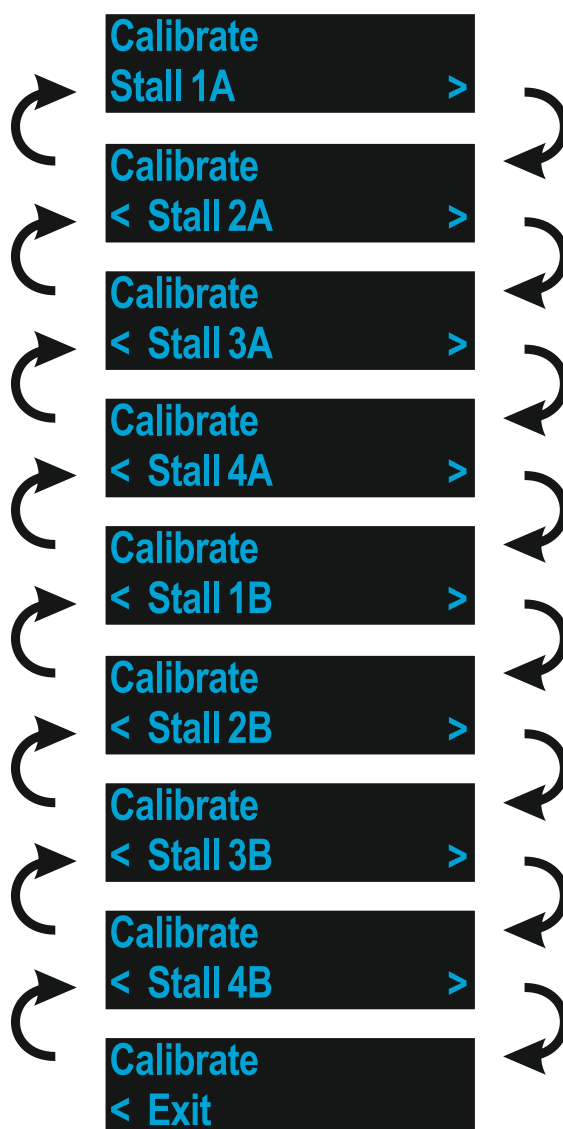
The next menu item is now displayed.

## The Calibration Menu

The calibration menu allows the user to calibrate individual feeder outputs.

## The Calibration Menu

The calibration menu is divided into sections, each section deals with a specific stall.



The process for each stall is the same, so the following pages will detail calibrating stall 1A, but the method is the same for all stalls.

## Calibrating a stall

The stall can be fed when in the stall selection menu, by pressing and holding the Down key and then pressing the Up key and letting go of them both.



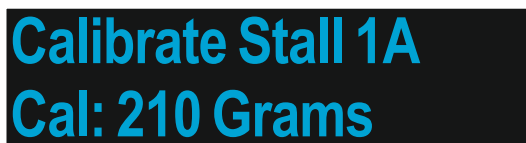
Calibrate  
Stall 1A >

Press and hold the Down key, then press the Up key and let go of both keys.



Calibrate  
Feed 1A

The interface will then feed the calibration ration to the stall, this will differ between output types, for Timed output types this will run the output for 2.2 seconds, for all others it will run one cycle (I.E. 1 rotation or 1 pulse). This should then be repeated 3 times and the feed fed should then be weighed and divided by 3. this is the calibration value and should be inputted into the system by pressing the enter key.



Calibrate Stall 1A  
Cal: 210 Grams

Press the Up key to increase the value. Hold the Up key to increase in 10s

Press the Down key to decrease the value. Hold the Down key to decrease in 10s

When the correct setting is selected, press the Enter key to store the value.



## The Send to System Setting

The Send to System settings menu allows the settings entered into one interface to be sent to all the interfaces on the system via the communications bus. Select the number of interfaces on the system. The range is 1 to 255. The factory default is 1.

**Send to System**  
**I/Fs: 1**

Press the Up key to increase. Hold the Up key to increase in 10

Press the Down key to decrease. Hold the Down key to decrease in 10s

When the correct number of controls has been selected, press the Enter key to send the settings to the controls.

**Transmit Settings**  
**Error unit: 2**

If the settings cannot be sent to an interface an error will be reported as shown above, check the wiring and power to that interface.

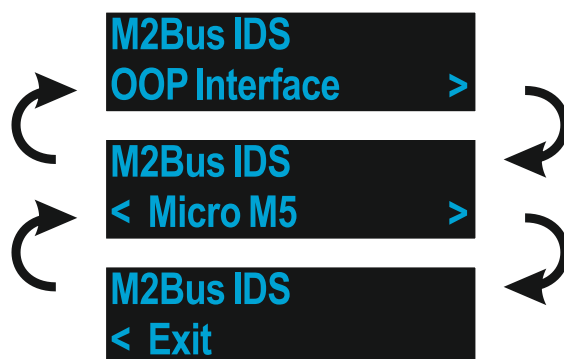
**Transmit Settings**  
**Update Finished**

If sending the settings is successful, the screen will show 'Update Finished'.

Press the Enter key to return to the main menu.

## The M2Bus IDS Menu

The M2Bus IDS menu allows the user to check the communications bus is working correctly, there are a number of menu items:



Pressing the Enter key when on a menu item will allow the user to check the communications to that item and to exit back to the main menu.

**OOP IDS 1**  
**Ok - Soft VX.XX**

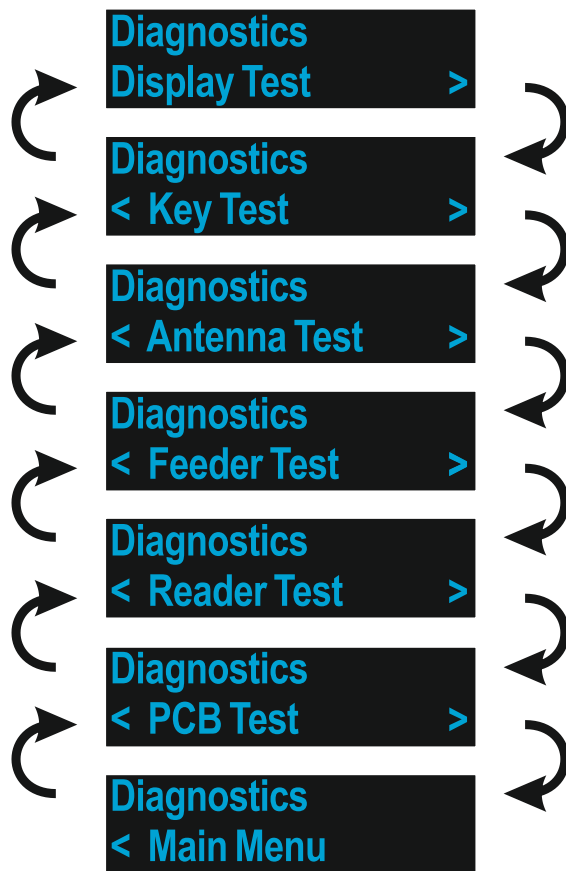
*or*

**OOP IDS 1**  
**Error - No Reply**

Press the Enter key to exit back to the M2Bus IDS menu.

## The Diagnostics Menu

The diagnostics menu allows the user to diagnose issues with the control, there are a number of menu items:



Pressing the Enter key when on a menu item will allow the user to access that item.

### The Display Test Diagnostics Menu Item

The Display Test will turn on all pixels on the display, pressing the Enter key will return to the diagnostics menu.

### The Key Test Diagnostics Menu Item

The Key Test menu item allows the testing of the keys, it will show the name of the key which has been pressed, pressing the Enter key will return to the diagnostics menu.

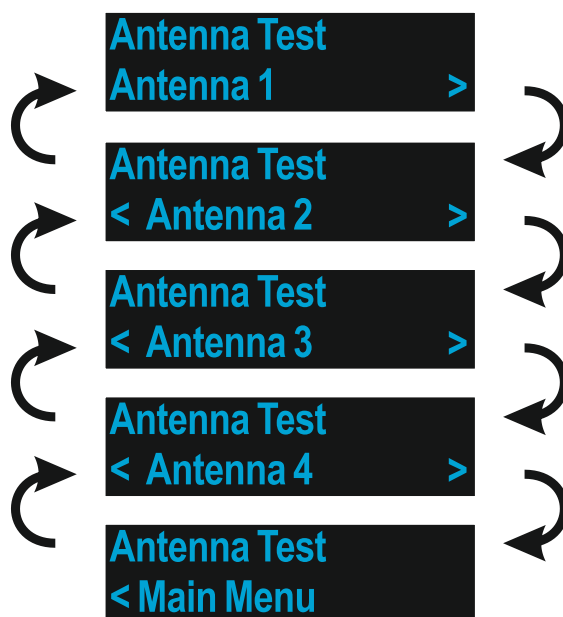
**Key Test**  
**Key: Up**

## The Antenna Test

The antenna test menu item allows the user to switch on a single antenna on an interface to test its functionality.

### The Antenna Test Menu

The antenna test menu allows the selection of an individual antenna.



Pressing Enter will select the antenna, Once an antenna has been selected its output voltage will be shown along with the 16 digit tag number if one is read.

**Ant 1: 50.0v**  
**0000000012345678**

Tuning can be carried out using the tuning coil connected to the reader, the highest voltage should be aimed for across all stalls.

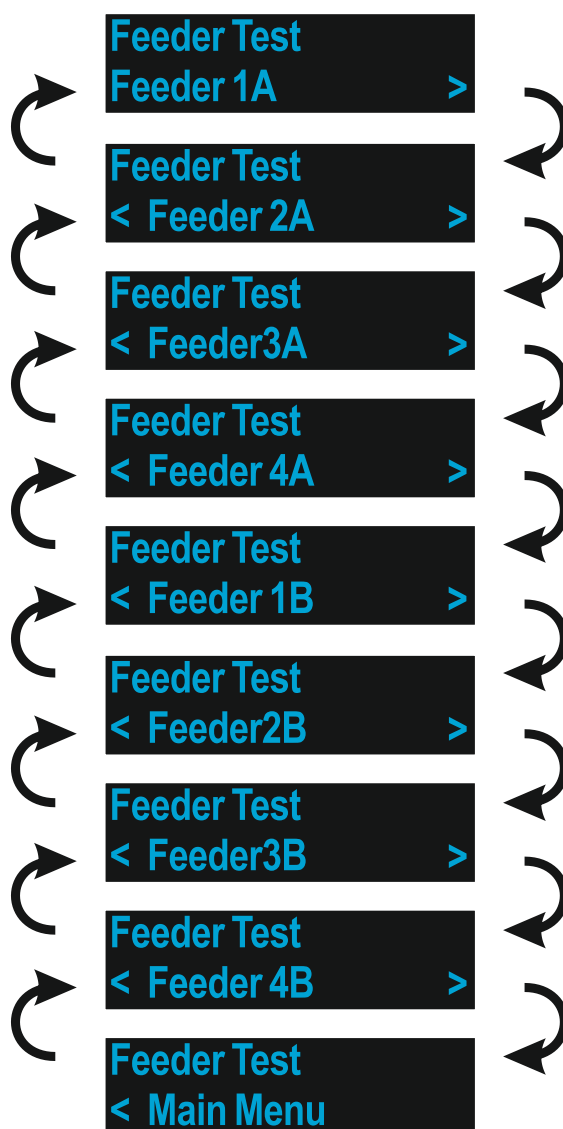
Pressing Enter will return to the antenna selection menu.

## The Feeder Test Menu

The feeder test menu allows the user to diagnose issues with feeder outputs on the interface.

### The Feeder Test Menu

The feeder test menu is divided into sections, each section deals with a specific feeder output.



The process for each stall is the same, so the following pages will detail testing feeder 1A, but the method is the same for all feeders.

### Testing a feeder output

When testing a feeder the interface screen will show the status of the output and the current being drawn by all of the feeder driver circuits on the output block.



1A State: 0.1A  
Off

Press the Up key and the output will run, this will be determined by the settings for the output.



1A State: 1.2A  
Move off Park

If the output driver encounters an error it will turn off and display the error, this allows the user to troubleshoot the motor and its wiring and rectify any faults.

Pressing the Enter key will exit to the feeder selection menu.


## Reader Test

The reader test function allows the user to check communications to a reader connected to the interface



Reader Test:  
OK - V3.00

When the reader is communicating correctly, the software version number will be displayed.



Reader Test  
Error: Comms

If an error is found, the error will be displayed, this can be a data communications error or an Mux input error. In both cases, check the wiring and functionality of the reader.

Pressing the Enter key will exit to the diagnostics menu.

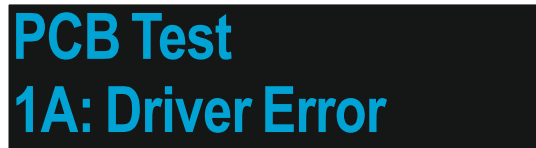
## PCB Test

The PCB test allows the user to check devices on the PCB for communications errors, this will test the EEPROM for settings storage and the data routes to the feeder output drivers.



PCB Test: OK

The Screen will show OK when all tests pass.



PCB Test  
1A: Driver Error

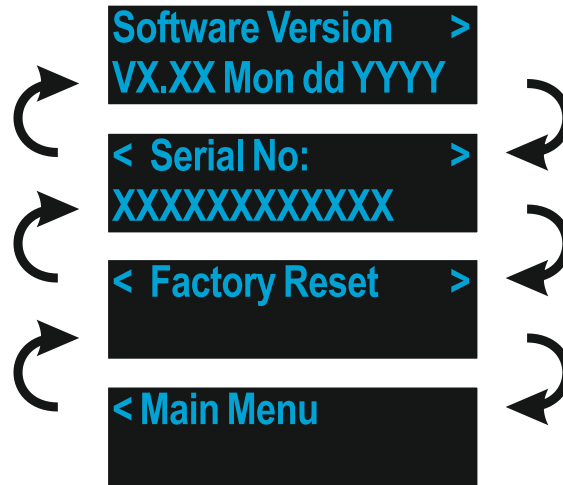
If an error is found, the error will be displayed.

Pressing the Enter key will exit to the diagnostics menu.



## The Device Info Menu

The device info menu allows the user to view information about the software in the control;



The software version menu item will show the version of the software as well as the build date.

The serial number will show the serial number of this control.

The factory reset function allows the user to erase all settings and reset with factory default ones.

Press the Enter key when Main Menu displayed to exit.