Using the SmartReader

Configuring the Electronic Controller for use

Each time you want to use the SmartReader you need to determine how you are going to use it.

This determines:

- what device to connect to the Electronic Controller and
- what operating mode to set on the Electronic Controller.

Setting up the Electronic Controller

For further details on the options described, see *Electronic Controller Connectors* (p 9).

1. Are you connecting the Electronic Controller to an external device (Scale or Computer)?
   - If yes, go to step 2.
   - If no, no set up is required.
2. Connect the Electronic Controller to an external device.
   a. Ensure the Electronic Controller is turned **off**.
   b. Plug the supplied serial cable into the serial port on the Electronic Controller.
   c. Plug the other end into the device and set it up to receive the data.

   Note:
   - If your computer does not have a serial port, use the supplied DB9 to USB adaptor to connect to a USB port on the computer.
   - If connecting to a Gallagher or Ruddweigh Scale, connect the serial cable into COM Port 2 on the Scale and set the port to **EID Allflex** in the Communications menu. See your Scale manual for details.

Setting the operating mode

For further details on the options described, see *Electronic Controller Features* (p 4).

1. Do you want to save the Electronic ID tag number to the internal memory?

   • If yes, turn the dial to **Memory**. Go to next step.
     Note: Data is stored in the internal memory and is **also sent out** via the COM port in this mode.

   • If no, turn the dial to **On**. Go to next step.
     Note: Data is sent out via the COM port but is **not stored** in the internal memory in this mode.

2. Do you want to reset the counter to zero on the Electronic Controller?

   • If yes, press the **Reset Counter** button. Go to next step.

   • If no, go to next step.

3. Do you want to add the new tag reads to the existing session?

   • If yes, end of procedure.

   • If no, press the **New Session** button.

   Note: A new session is always created when the Scale is turned off then on.

Scanning Electronic ID tags

1. Begin scanning Electronic ID tags.
2. Do you want to add the new tag reads to a new session?

   • If yes, press the **New Session** button. Go to step 3.
     For further details, see *Buttons* (p 5).

   • If no, go to step 3.

3. Continue until you have read all Electronic ID tags.

Finishing a scanning session

1. Turn off the Electronic Controller.
2. If you had external devices connected to the Electronic Controller disconnect them.
3. On the Electronic Controller, unscrew the Amphenol connector locking nut and disconnect the antenna cable from the Electronic Controller.
4. On the Electronic Controller, replace the cap onto the Amphenol socket and tighten to protect from debris.
5. Grasp the Electronic Controller on both sides and lift up until it clears the mounting bracket.
6. Screw the Amphenol connector on the antenna cable into the Amphenol socket on the Antenna Panel and tighten the locking nut.

   Note: This helps keep the Amphenol connector free of dust and debris.

For information on downloading data from the Electronic Controller into MyScale Pro see *MyScale Pro* .

# Power options in BR Series SmartReader

Charging internal batteries

Note: The SmartReader **will not operate** with the battery charger connected. To charge the internal batteries in the Electronic Controller, complete the following steps:

1. Check the input voltage on the battery charger is correctly set (110 or 230 V AC).
2. Plug the battery charger into power socket and turn on.
3. Connect the battery charger in the Electronic Controller.

Antenna socket

Battery charger socket / External power supply socket

RS232
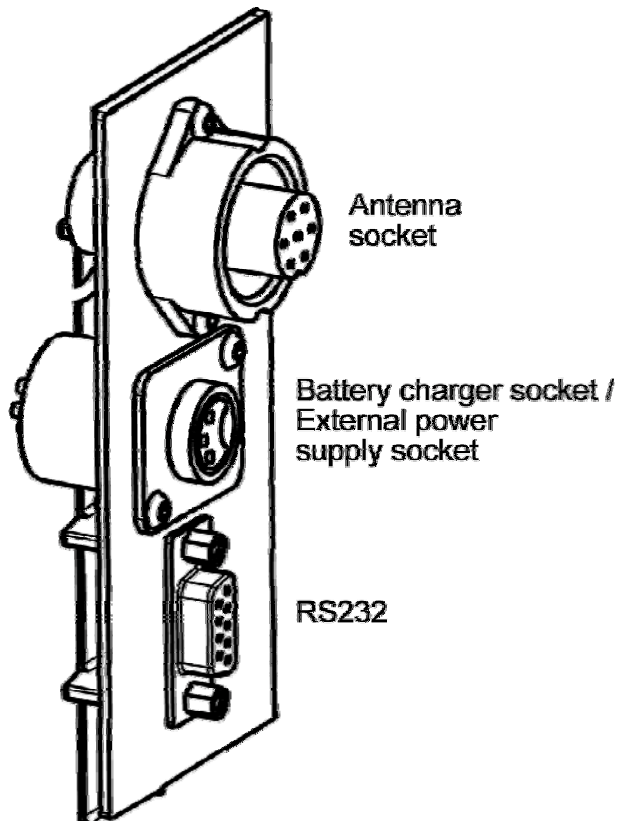
4. On the battery charger, switch the unit on.
5. Check the LED on the battery charger to ensure Electronic Controller is being charged:
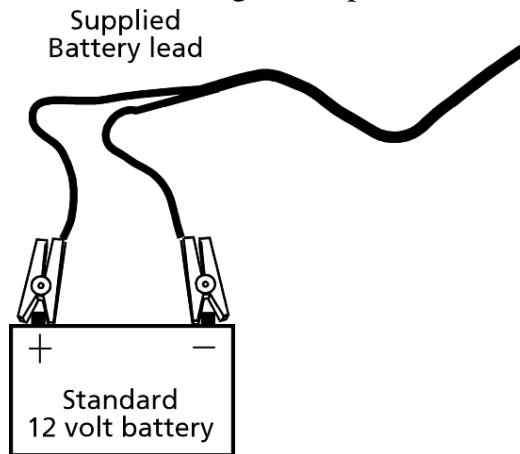
Notes:

- The battery charge time is approximately 6 hours.
- Once the battery is full charged the battery charger stops charging.
- The bargraph indicates the charge level by the number of static *bars. S*ee Bargraph (p 7).

Connecting to an external 12 volt battery

To connect the Electronic Controller to an external 12 volt battery, complete the following steps:

1. Connect the supplied black and red battery lead to the Electronic Controller.

2. Connect the alligator clips to the 12 volt battery.

Connect the **Red** clip to the **Positive** terminal
Connect the **Black** clip to the **Negative** terminal.

Notes:

- The bargraph displays the level of charge in the
  - external 12 volt battery, or
  - internal battery

  whichever is the greater.
- The internal batteries are not charged.

Low voltage shutdown

When the battery charge (for the battery providing power to the Electronic Controller) drops to below one bar the low battery beep sounds (four beeps) to indicate the battery has low voltage. This will continue regularly until the battery level becomes critical or until you charge the battery.

This applies for both the internal and external (if connected) batteries.

When the battery charge (for the battery providing power to the Electronic Controller) drops to a critical level, the Electronic Controller shuts down. During the shut down process the low battery beep sounds (four beeps) and the display shows **BATT**. The critical level occurs when the battery voltage drops below 11.5 volts.

Replace the external battery or recharge the internal batteries.

For further information on connecting an external 12 volt *battery, see Connecting to an external 12* volt battery (p 16).

Note: This warning sounds regardless of the volume level setting.

High voltage shutdown

If the power source to the Electronic Controller provides a voltage greater than 16 V, the Electronic Controller automatically shuts down to protect the electronics. The display shows **VOLT** while shutting down. For additional information, see *Display* (p 6).

Installation

Connecting the Electronic Controller batteries

During factory assembly, two batteries are installed in the Electronic Controller. These batteries are not connected to the Electronic Controller to preserve the battery prior to first use.

Once you are ready to use the Electronic Controller for the **first time**, it is necessary to connect the batteries. **You do not** need to disconnect the batteries again.

1. On a soft cloth, lay the Electronic Controller on its front.
2. Using a posi-drive screw driver, remove the screws holding the lower back Antenna Panel of the Electronic Controller.
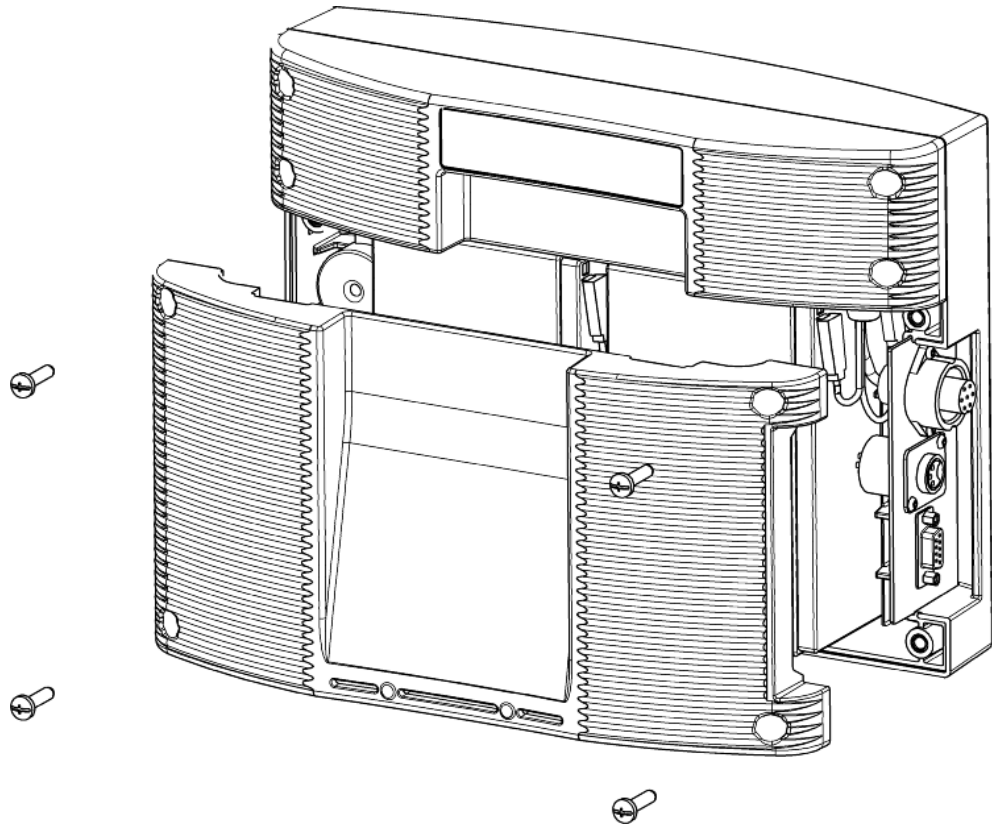
3. Remove the lower back Antenna Panel.
4. Remove the foam spacer between the batteries and retain.
5. Stand each battery up.
6. Connect the battery leads. Connect the longer leads to the left-hand battery.

   • Connect the Red lead to the red terminal.
   • Connect the Black lead to the black terminal.

7. Lay down the batteries with the:

    • terminals to the top of the box and,

    • the battery tops towards the connectors.

    Note: Take care not to damage the terminals when replacing the batteries

8. Refit the foam spacer between the two batteries.

    Note: This foam stops the batteries moving and damaging the terminals.

9. Replace the lower back Antenna Panel.

10. Replace the 4 posi-drive screws and tighten.

11. Charge the internal batteries to ensure they are fully charged *ready for use. See to Char*ging internal batteries (p 15).

Mounting the Antenna Panel

Antenna Panel Kit

The **Antenna Panel kit** contains the following components:

- Antenna Panel
- Mounting instructions
- Antenna Panel mounting kit:
    - 4 x Washers M8 x 21 mm flat Stainless steel
    - 4 x Bolt M8 X 70mm HEX Stainless steel
    - 4 x Nut M8 HEX Stainless steel
    - Screw Wood TEK 14 X 10 90mm
    - Screw Wood TEK 14 X 10 65mm

Notes on locating the Antenna Panel

Gallagher recommends the following when installing the SmartReader Antenna Panel:

- The Antenna Panel can be mounted onto metal pipe work or wood of the animal handler but not solid steel handler walls.
- The edges of the Antenna Panel contain the antenna windings. This means that when the Antenna Panel is mounted, vertical bars should be kept away from the vertical edges of the Antenna Panel and horizontal bars should be kept away from the horizontal edges of the Antenna Panel.

Considerations

- The position of the Antenna Panel installation depends on the type and size of the animals to be scanned and the size of Antenna Panel to be installed.
- Gallagher recommends you mount the Antenna Panel temporarily while you determine the most appropriate position.
- Mounting the Antenna Panel on a metal animal handler can alter the read range of the SmartReader. Gallagher recommends that the SmartReader is mounted on wood or spaced pipework.
- Multiple SmartReaders can be installed in close proximity to each other, so long as they are synchronised to ensure conflict does not occur between *SmartReaders. See Installing m*ultiple SmartReader (p 36) for further details.
- Use the defined mounting holes, because drilling through the Antenna Panel will damage the antenna.
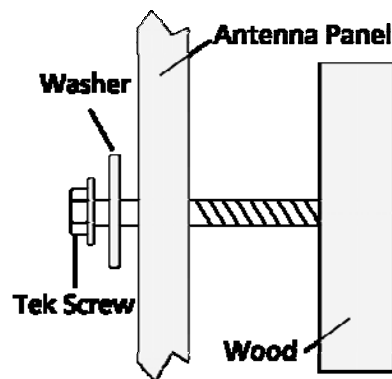
Procedure

1. Measure the vertical range of the Electronic ID tags on the animals to be scanned.
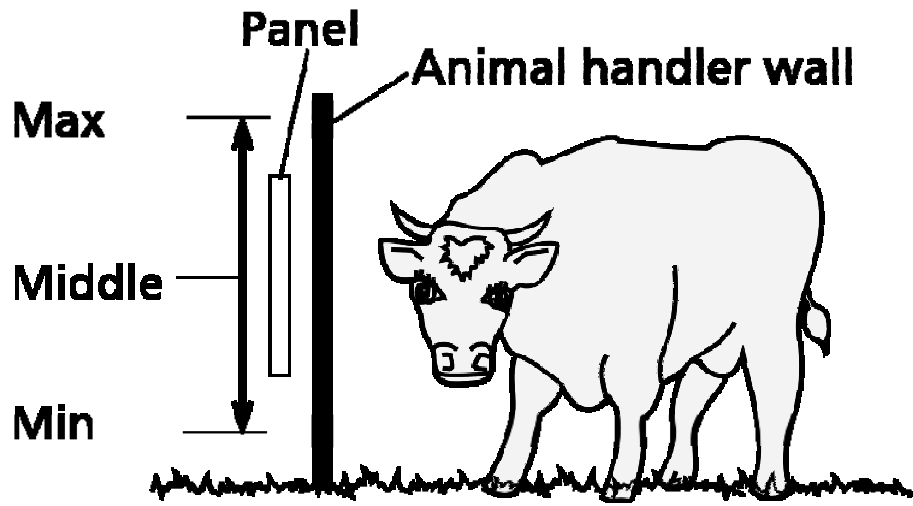
2. Determine the average height of the Electronic ID and mark this on the **outside** of the animal handler.

3. Determine what the Antenna Panel is to be mounted on, wood or pipe work, and prepare the appropriate mounting hardware from the supplied kit.
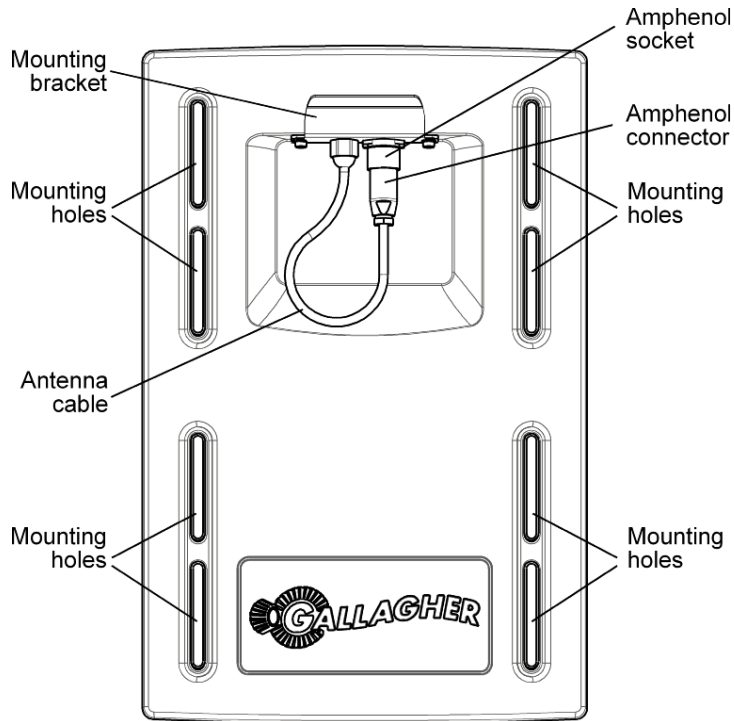
Wood - washers and tek screws   Pipe work - washers, bolts and nuts
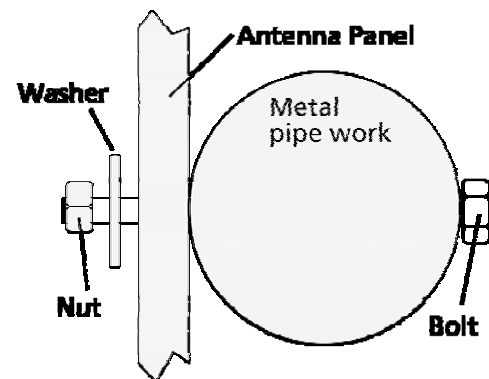
4. Using the **defined mounting holes**, mount the Antenna Panel on the **outside** of the animal handler so that the middle of the Antenna Panel matches the average height.

    Note: DO NOT drill through the Antenna Panel as it will damage the antenna.

Note: You may want to temporarily attach the Antenna Panel and test the read range prior to permanently attaching the Antenna Panel.

Mounting the Electronic Controller

Considerations

- Ensure the mounting location of the Electronic Controller provides protection from being knocked or damaged by animals.
- The Electronic Controller needs to taken away from the Antenna Panel location to charge the internal batteries and to download the Electronic ID data to computer.
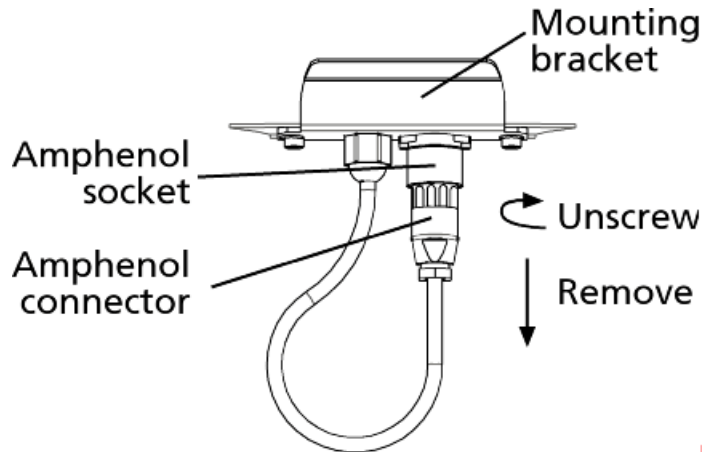
Electronic Controller kit

The **Electronic Controller kit** contains the following components:

- BR Series Electronic Controller with internal batteries.
- Battery Charger
- MyScale Pro CD
- Instruction Manual (this manual)
- Cables
  - Short serial cable (DB9 to DB9)
  - Long serial cable (DB9 to DB9)
  - DB9 to USB adapter
  - External battery cable (red and black)
 - Mains power cord (Battery Charger)

Connecting the Electronic Controller to the Antenna Panel

For information on using the Extension Mounting Kit see
*SmartReader Extension Mounting Kit installation* (p 76).

1. Ensure the Electronic Controller is turned off.

2. On the Antenna Panel, unscrew the Amphenol connector locking
   nut from the Amphenol socket and pull it down to unplug from the
   Antenna Panel.

3. Mount the Electronic Controller on the mounting bracket by
   grasping the Electronic Controller on both sides and slide the back
   handle onto the mounting bracket.
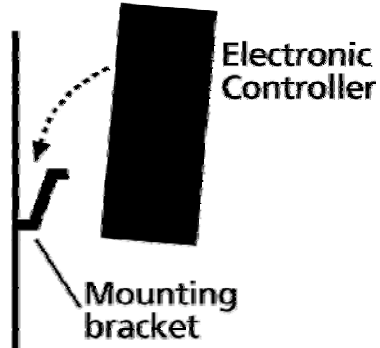
4. Connect the antenna cable to the Electronic Controller and tighten the locking nut.

Antenna
socket

Battery charger socket /
External power
supply socket

RS232
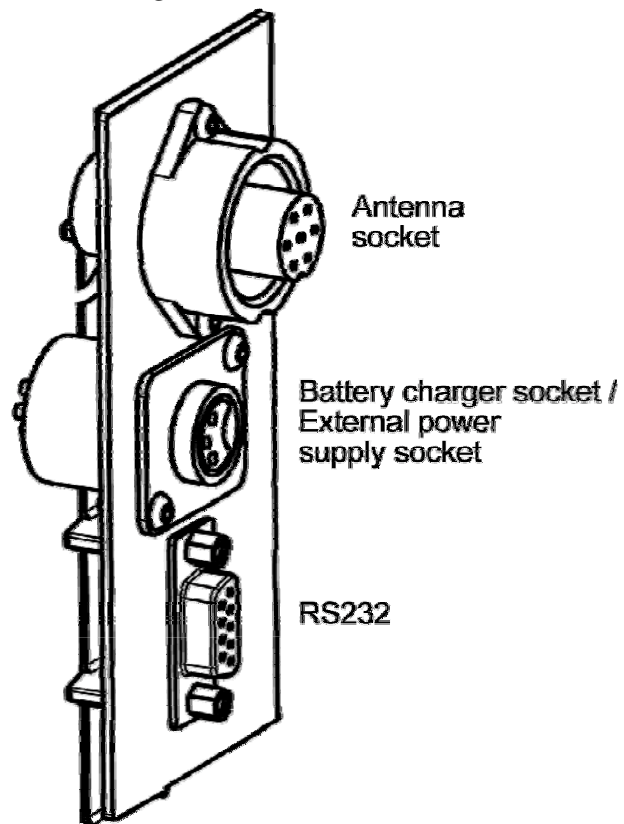
Testing the SmartReader EID tag read range

The SmartReader EID tag read range should be tested to ensure the animals passing through the animal handler are accurately and reliably identified.

The SmartReader generates a balloon shaped read range (see diagram next page), within which EID tags are read reliably. The size of the read range for individual installations should be the width of the animal handler.

The SmartReader EID tag read range for a particular installation is tested using the built in set up mode in the SmartReader. This set up mode changes how often the SmartReader beeps to confirm a tag read from "only on first read" to "every read". This enables you to easily test the SmartReader EID tag read range using the same tag.

The following section describes how to complete an initial test on the SmartReader EID tag read range for your SmartReader installation. For more advanced *testing see Advanced EID tag read r*ange testing (p 30).

Note: The SmartReader is shipped in Setup mode.
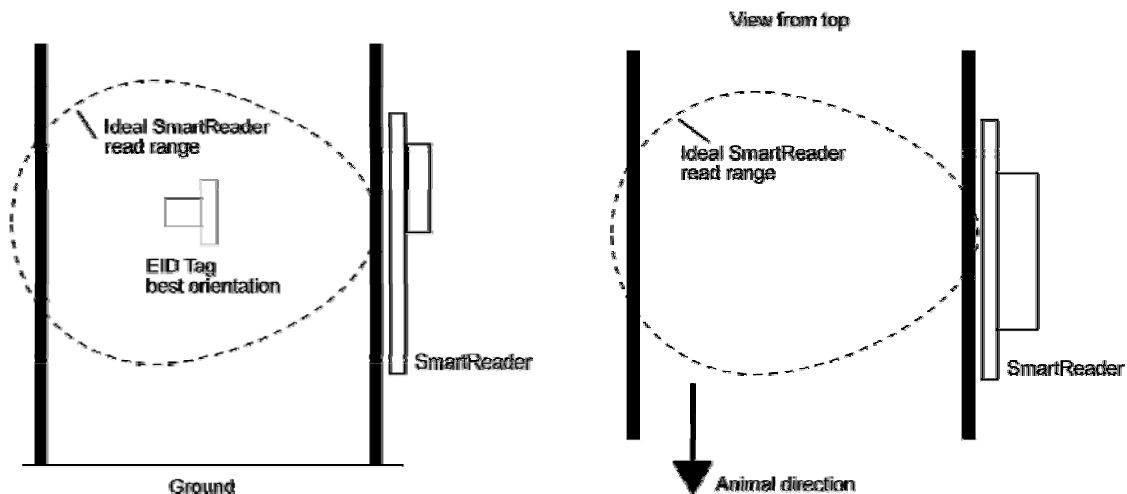
Testing the read range

For your SmartReader installation you need to determine the size of the EID tag read range. If the read range is too small you need to take steps to improve it.

You need to test the appropriate type of EID tag you will be using, either HDX (Half duplex) and/or FDX (Full duplex).

To determine the size of your installation's SmartReader EID tag read range, complete the following steps:

1. Turn on the SmartReader.
2. Ensure the SmartReader is in set up mode by holding an EID tag in front of the SmartReader.

    • If the SmartReader beeps continuously it is in set up mode.

    • If the SmartReader beeps once it is in operational mode.

3. Hold the EID tag in the best orientation in the animal handler near the SmartReader Antenna Panel.
    The SmartReader should **beep** indicating it is reading the EID tag.

4. Move the EID tag around to determine the size of the read range.
5. Is the read range indicated by the EID tag reads close to the ideal?

    • If yes, then test with live animals by passing a small group of animals through the animal handler and reading their Electronic ID tags.

    • If no, see *Investigating SmartReader read range issues* (p 29).

Connect the Electronic Controller to a computer

Procedure

1. Ensure the Electronic Controller is turned **off**.
2. Using the supplied serial cable, connect the computer and the Electronic Controller.
    d. Connect one end of the serial cable into a COM port on your computer.

       If required, use the supplied DB9 to USB adapter to connect to the USB port on the computer.
    e. Connect the other end into the COM port on the Electronic Controller
3. Turn the dial to **ON** or **Memory**.

   The Electronic Controller beeps twice.

Investigating SmartReader read range issues

If the EID tag read range on your SmartReader installation is not adequate, check the following:

- The SmartReader is turned on and connected to the Antenna Panel.
- The EID tag is functional and is in the correct orientation for testing.
- The Battery Charger is disconnected from the SmartReader.
- The battery charge level indicator shows two or more bars.

Re-test the read range by passing a small group of animals through the animal handler and reading their Electronic ID tags. If the SmartReader read range is still not adequate, complete the advanced testing and contact your Gallagher representative, *see Advanced EID tag read range tes* (p 30)ting.

Accessing and exiting Setup mode

To swap the SmartReader from Setup mode to Operational mode (or the reverse), complete the following steps:

1. Turn the SmartReader on.
2. Press and hold the **Volume** button.
3. Turn the SmartReader off.

When you turn the SmartReader back on again the SmartReader will have swapped to the other mode.

Note: Prior to use, ensure the Electronic Controller volume is on.

Advanced Electronic ID tag read range testing

If an adequate EID Tag read range is not achieved during the initial testing, use the following advanced testing procedures.

Install the Configurator software utility prior to starting the advanced Electronic ID tag read range testing.

The Configurator software utility is automatically installed with the MyScale Pro software.

You will need the following items at the animal handler:

- a Laptop computer with either a serial (DB9) or USB port
- a Serial cable (supplied)
- the Serial to USB cable - if using the USB port (supplied).

Start the Diagnostics Wizard

1. Connect the SmartReader to a computer. See *Connect the Electronic Controller to a computer* (p 28).

2. Turn the Electronic Controller to **ON** or **Memory**.

3. Open the Configurator software.

   - Double-click on the Configurator icon on the desktop.
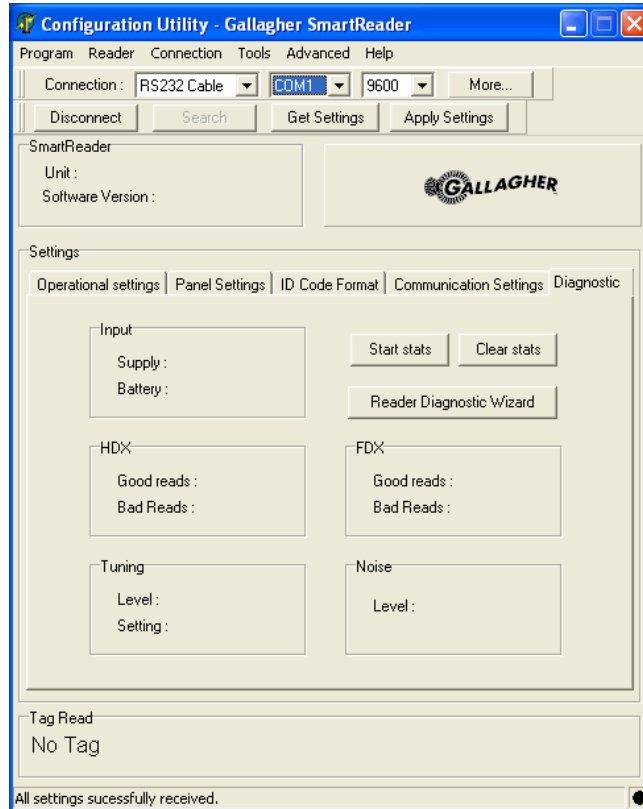
     Configurator

   OR

   a. Click on the Windows **Start** button.

   b. Select **All Programs** (Windows XP) or **Programs** (Windows 2000).

   c. Select **MyScale**.

   d. Click on **SmartReader Configurator**.

4. Click Connect.

   The current settings for the connected Electronic Controller are displayed in the lower part of the screen.
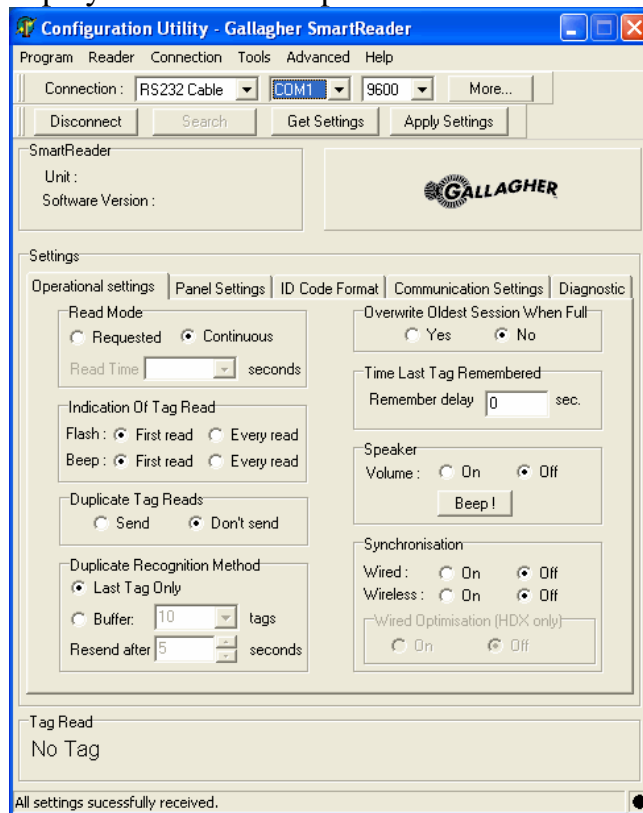
5. Click on the [Diagnostic] tab. The following screen displays:

6. Click [Reader Diagnostic Wizard]. The following screen displays:
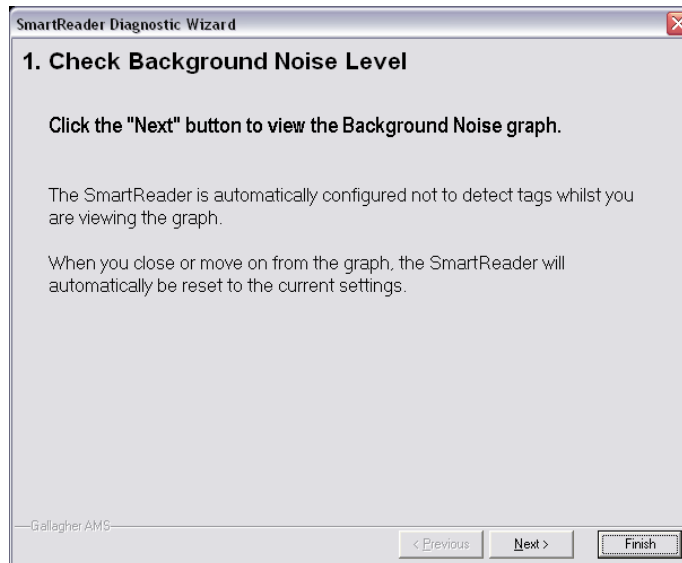
Assessing the background noise

With this screen displayed, SmartReader "hears" background electrical noise like that generated by Computers, Mobile Phone, Electrical generators etc in the frequency band that the EID tags work in. This background noise can interfere with the reading of the EID tags.

1. Press [Next >]. The following screen displays:
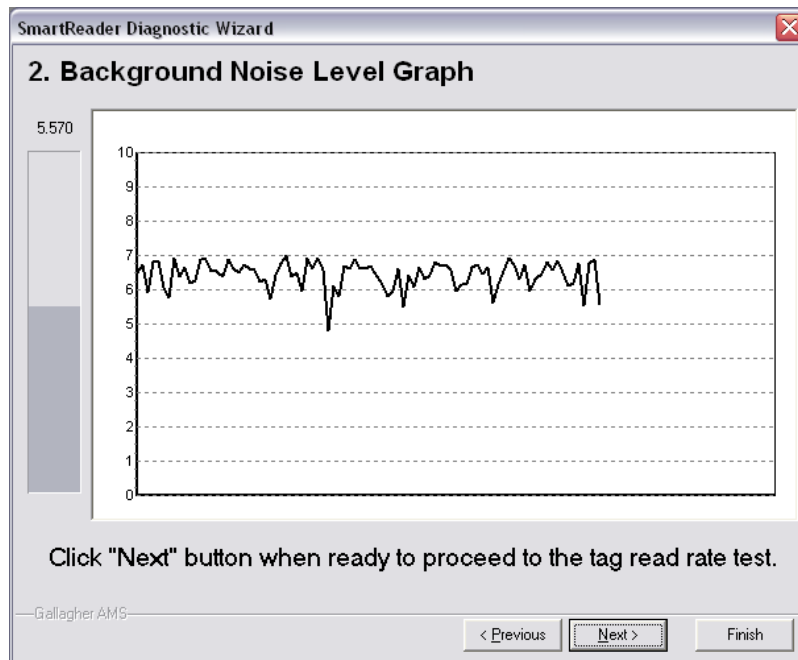
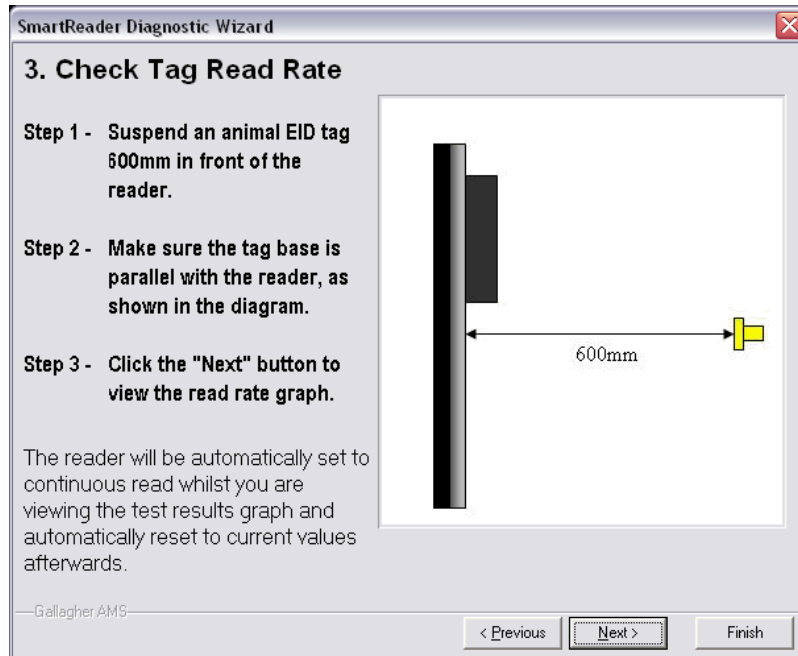**Note:** While this screen displays the SmartReader will not read EID tags.
The horizontal scale shows approximately 2 minutes viewing of the background noise.
The vertical scale shows the level of background noise. The higher up the scale the more background noise and the more likely the Tag read range will be reduced.
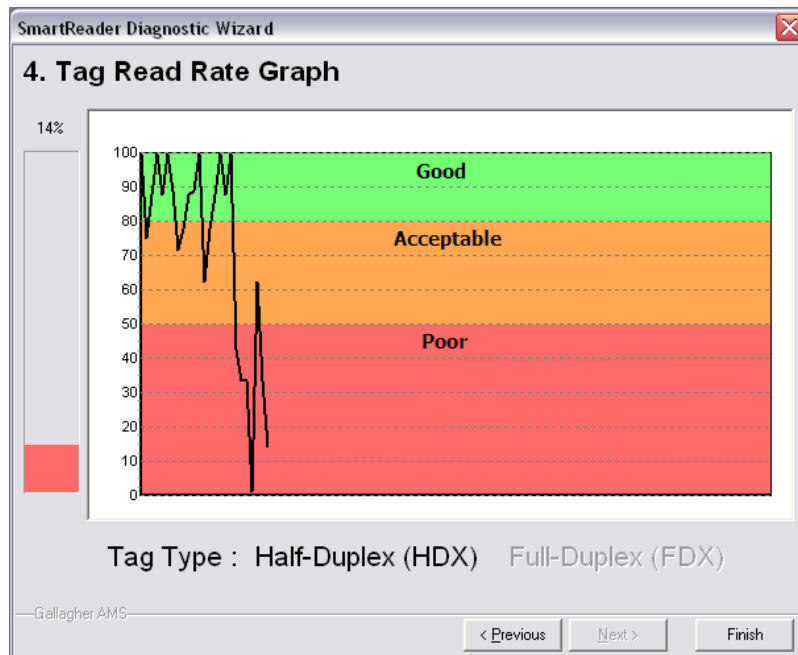
2. If the background noise level is high, try turning off sources of electrical noise and re-test.

Test read range

1. Press [Next >]. The following screen displays:

2. Follow the instructions on the screen to test the EID tag read range in your animal handler.

3. Press [Next >]. The following screen displays:

   Note: While this screen displays the SmartReader is automatically set to continuously read.
   The type of tag being read is shown at the bottom of the screen.

4. Alter the mounting location of the Antenna Panel with the aim of improving the read range.

See *Mounting the Panel* (p 20).

Note: Once you have finished using the Configurator ensure you click on the disconnect button in the Configurator program prior to unplugging the cable. This ensures the data transmission returns to the correct state.

Testing with live animals

1. Pass a small group of animals through the animal handler.
2. Did the SmartReader read all the tags?

   - If yes, the SmartReader is operational.
   - If no, contact your Gallagher representative for further information.

Installing multiple SmartReaders

When multiple SmartReaders are installed in close proximity, additional set up is required to ensure all Electronic ID tags are read correctly.

Each SmartReader must be able to communicate with all other SmartReaders to enable the panel antenna to be switched on and off at the appropriate times to ensure both Electronic ID tags can be read. For additional information about tags, see *Tag types read* (p 3).

- If you have two SmartReaders to install you may use a wireless installation.
  The wired option may also be used. The wired option is the preferred option for the greatest reliability.

- If you have more than two SmartReaders you must use wired installation.

Wireless installation

Note:

- This option is applicable if you are installing two SmartReaders.

Once you have installed both SmartReaders, you need to change the following settings in the Electronic Controller via the Configurator program on your computer.

Procedure

1. Connect the SmartReader to a computer. See *Connect the Electronic Controller to a computer* (p 28).

2. Turn the Electronic Controller to **ON** or **Memory**.

3. Open the Configurator software.

    - Double-click on the Configurator icon on the desktop.

    OR

    a. Click on the Windows **Start** button.

    b. Select **All Programs** (Windows XP) or **Programs** (Windows 2000).

    c. Select **MyScale**.
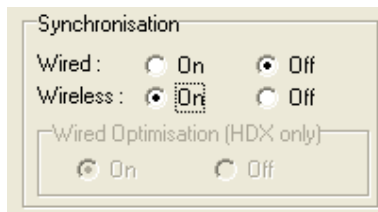
    d. Click on **SmartReader Configurator**.

4. Click [Connect].

    The current settings for the connected Electronic Controller are displayed in the lower part of the screen.

5. Click [Get Settings].
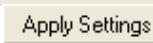
    The Electronic Controller current settings are transferred to the Configurator and displayed.

6. Set the **Synchronisation - Wireless** option to **On**.

7. Click [Apply Settings] to copy the changes down to the Electronic Controller.

8. Repeat for the second SmartReader.

Wired installation

Note:

- Applicable if you are installing three or more SmartReaders.
- Applicable for two SmartReader installations where greater reliability is required and it is practical to run the required cables.

Once you have installed the SmartReaders, you need to change the following settings in the Electronic Controller via the Configurator program on your computer.

Procedure

1. Connect the SmartReader to a computer. See *Connect the Electronic Controller to a computer* (p 28).
2. Turn the Electronic Controller to **ON** or **Memory**.
3. Open the Configurator software.

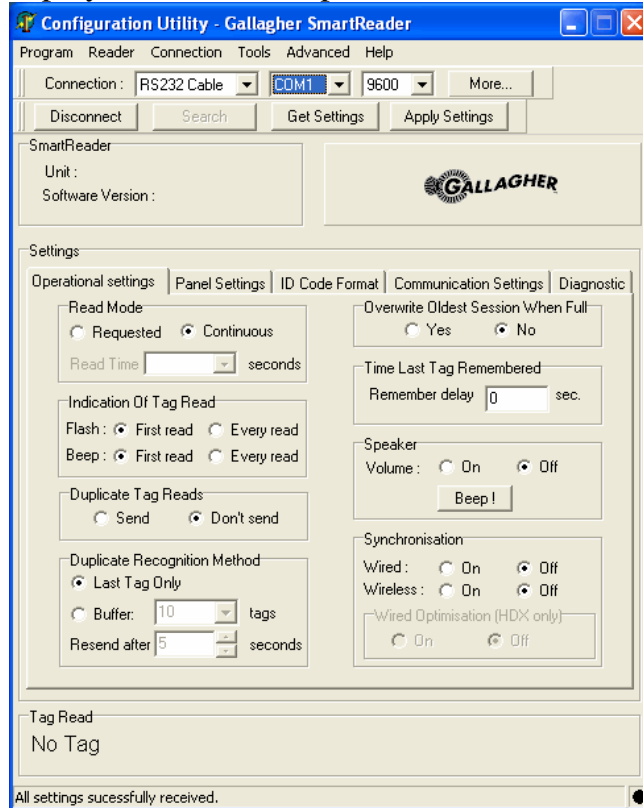   - Double-click on the Configurator icon on the desktop.

     Configurator

   OR
   a. Click on the Windows **Start** button.
   b. Select **All Programs** (Windows XP) or **Programs** (Windows 2000).
   c. Select **MyScale**.
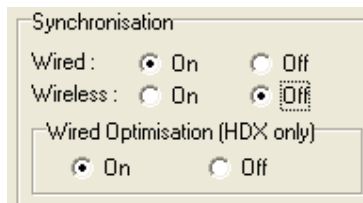   d. Click on **SmartReader Configurator**.

4. Click [Connect].

    The current settings for the connected Electronic Controller are
    displayed in the lower part of the screen.

5. Click [Get Settings].
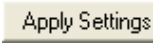
    The Electronic Controller current settings are transferred to the
   Configurator and displayed.

6. Set the **Synchronisation - Wired** option to **On**.

7. If you are only reading HDX (Half Duplex) Electronic ID tags, set
    the **Wired Optimisation (HDX)** only option to **On**.

8. Click [Apply Settings] to copy the changes down to the Electronic
    Controller.

9. Repeat for all other SmartReaders.

Cabling requirements for connecting SmartReaders

During the wired installation you need to connect all SmartReaders together with a cable with the following pin outs:
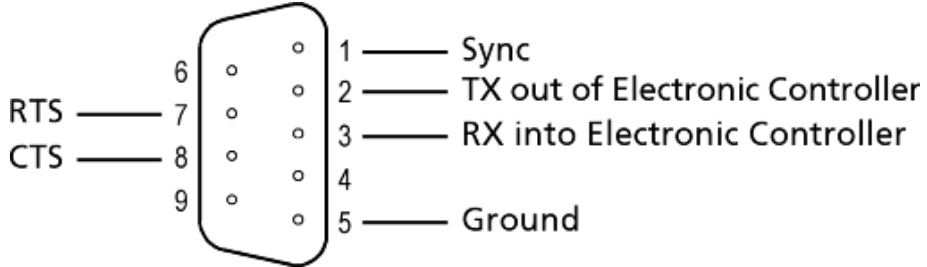
This cable in not supplied by Gallagher - you are expected to have a custom cable made to suit the individual installation.
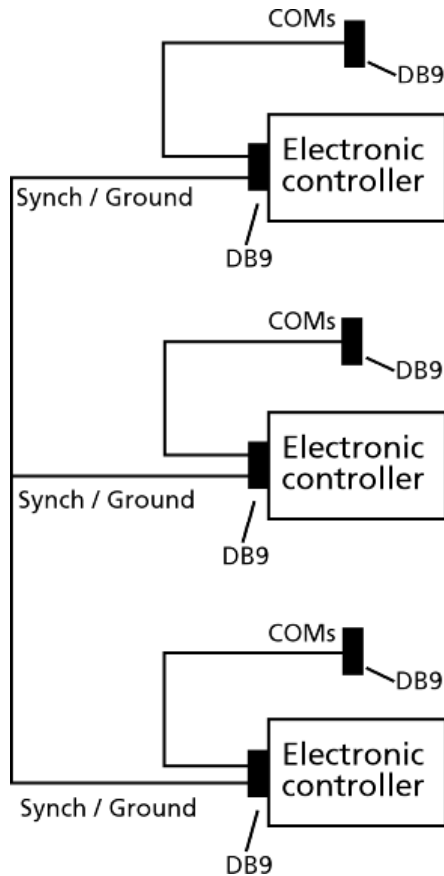
The extra COM connectors enable you to alter the settings of each Electronic Controller.

Create one for every Electronic Controller you have. This enables you to easily set up and communicate with all SmartReaders.