Spreader Rate Control Plus Area/Hour Measurement system


www.areameters.com

Ver 1.0
If you Need to Call Customer Service
Please complete the following information for future reference:
Model* : ............................................................
Serial Number * : ................................................................
Date Purchased : ................................................................
Place of Purchase:................................................................

* The serial/Model Number is displayed in the Information Screens of the meter.

IMPORTANT:
To obtain the highest Precision Spreading Surface Area Measurement:

- The Speed sensor must be mounted on a wheel that is not subject to slip or spin during the Surface Area Measurement mode. ie: When not in Hold mode.
- Straight line operation is best suited to surface area measurement as tight turns of implement / vehicle will result in a lesser or greater number of wheel turns. High precision measurement is best achieved by working to straight lines.
- Wheel size and implement working width should be measured as required to ensure the sizes used by the meter, reflect the real world sizes of the spreader. It is the users responsibility to ensure the sizes in the meter are correct.
- When Work is not being measured, the meter must indicate this by going into Hold mode.ie: Hold light on, "HOLD" flashing on working screen.
- Enter the correct Material Density, and Door Open distance to allow the Field Mate to calculate the correct chain speed to suit the required spreading rate. This can be entered in the Material edit screen or setup screens.
Introduction:

The FIELD MATE Spreader Rate controller and Area Meter has been developed to calculate Land area, distance travelled during spreading while controlling the speed of the floor chain to achieve a user defined spreading rate. The meter will also record spreading hours and time stopped. While spreading the meter can display the spreading rate in hectares per hour and chain and spinner rpm as the desired spreading rate is controlled. All measurements are in metric, eg: hectares, kilometers, centimeters, millimeters.

A distance sensor mounted on the wheel of the spreader. Shaft sensors are mounted on the chain and spinner motors. Spreading on and off function is controlled by the driver when the Fieldmate Run / hold switches are activated.

To achieve the desired spreading rate the operator must enter the following:
- Enter the MATERIAL DENSITY into the meter.
- Enter the DOOR OPEN distance.
- Enter the required Spreading RATE.

The FieldMate will now compute the chain motor rpm to achieve the desired rate based on the 3 information sets entered above.

The unit is rugged, reliable, easy to use, fits any spreader system.

Warranty:

1 Year return to factory Warranty on Field Mate Controller, sensors and Downloading support hardware. Please ensure you agree to the warranty conditions before proceeding to purchase this product, read the warranty form at the end of this user guide. Installation wiring to sensors, wear and tear on connectors is not covered.

EMI Emissions Certification:

This Computer has the following certifications:

<table>
<thead>
<tr>
<th>Certification</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-Tick Z874 Class B</td>
<td>New Zealand, Australia</td>
</tr>
<tr>
<td>FCC</td>
<td>USA</td>
</tr>
</tbody>
</table>

ELECTRICAL SPECIFICATIONS

Pin outs 12 Pin plug:

<table>
<thead>
<tr>
<th>Pin/ number</th>
<th>Colour</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Black</td>
<td>Earth</td>
</tr>
<tr>
<td>6</td>
<td>Yellow</td>
<td>Speed</td>
</tr>
<tr>
<td>5</td>
<td>White</td>
<td>Hold</td>
</tr>
<tr>
<td>3</td>
<td>Green</td>
<td>Spinner RPM</td>
</tr>
<tr>
<td>2</td>
<td>Brown</td>
<td>Chain LEFT RPM</td>
</tr>
<tr>
<td>7</td>
<td>Red</td>
<td>Chain RIGHT RPM</td>
</tr>
<tr>
<td>4</td>
<td>Blue</td>
<td>Batt power to sensors and valve solenoids.</td>
</tr>
<tr>
<td>8</td>
<td>Blue(3 core)</td>
<td>Chain 1 control. PWM switches to GND.</td>
</tr>
<tr>
<td>9</td>
<td>Brown(3 core)</td>
<td>Chain 2 or Spin ctrl. Pwm switches to Gnd</td>
</tr>
<tr>
<td>10</td>
<td>Yellow(3 core)</td>
<td>Oil Temp</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>Power to main oil valve</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>Earth to main oil valve</td>
</tr>
</tbody>
</table>
**Specifications:**

- **Supply volts**: 5 – 30 Volts
- **Max Field Mate Current**: 25ma
- **Current Soleniod Current**: 1 amp
- **Temperature**: -5 to 55 degree/C
- **Input voltages**: 0 to 30 Volts
- **Area**: 999.99 hect
- **Distance**: 999.99 km
- **Speed**: 100 km/Hr
- **Wheel Size**: 999.9 cm
- **Width**: 9999.9 cm
- **Number of materials**: 20
- **Number of Jobs**: 1 (PRO version max jobs 16)

**Features:**

- Large graphically displayed numbers, easy to see.
- 3 button operation, for quick simple operation.
- Reset button is multi functional. It can:
  A. Reset set the current job totals.
  B. Shut down the alarm when the alarm is sounding
     (eg: when low seed sensor has triggered).
  C. Allows the meter to switch between auto and manual mode when tramlining.
- Backlit display for night time working.
- Dust sealed.
- Moisture resistant.
- Strong Aluminium Case.
- Internal alarm buzzer.
- Bright light indicators.
- Easy fit velco mount. Or option window mount.
- Quick transfer from tractor to tractor.
- Reports all job information on screen.
- Automatic data Backup.
- Help Desk Phone number display.
- Data storage time with out power 20 years.
- All inputs high voltage protected.
Start a Job
Note: This system is operated by either pressing and holding or quick pressing the ▲ or ▼ or reset or power buttons.

1. Turn On the system using the power button.

2. Turn on the oil valve using the control valve switch.

3. At the main screen quick press ▼ to get to the JOB screen.
**1: Mounting:**
Mount unit where it is easy to operate. Use the Ram mount fitting supplied to set the device in any position.

**2: Connect Cables:**
Connect power to the unit. Plug the 12 pin plug into the spreader 12 pin plug. These cables and sensors should be factory connected.

**3: Configure the system using the SETUP option screens:**

- Set display contrast.
- Speed sensor debounce. Typical set 20%.
- Set to Single or double floor depending on spreader type.
- This is distance the spreader travels every time a wheel pulse is received.
- Spreading width.
- Date setup
- Help desk phone number
- Id of this unit
- Setup time
- Defines how often the Chain valve PWM setting is updated. Set to 2.
- Defines how often the Spinner valve PWM control is updated. Set to 2. Only used on Single Floor system.
- Displays the spinner speed for current job.
- Defines Max Chain motor RPM.
Defines Max Spinner motor RPM.

Displays the distance in millimeters that the door is open on the spreader for the current job.

Displays the Spreading Rate for the current job.

Displays the Product name for the current job for the material being spread.

Number for spinner pulses that occur for 1 rev of the spinner motor.

Number for chain pulses that occur for 1 rev of the chain motor.

If Twin Floor system, here is where the 2nd chain pulse count is entered for 1 rev of the chain motor.

Width of Spreader chain floor.

Density of the material currently being spread.

Chain gearbox ratio.

Number of speed pulses to occur before the system knows it has travelled the PULSE DISTANCE.

Spinner RPM when in DUMP mode.

If programed rate not delivering correct weight per hect this number can force the rate to under or over deliver material for the set rate.
Next screen is "SLOT OFFSET", this number is used by the factory to set the correct amount of material driven from the spreader. Relates to a single or double chain configured machine.

For a Twin floor machine it is typically set to 2260.

**Getting started............**

Now that the area meter has been wired up, the area meter needs the following settings configured.

**Step 1:**

Turn unit on with power button.

**Step 2:**

Observe main screen

- **Twin floor screen**
  - How often the Field Mate backs the system up when not moving. Typically 1 min.
  - PWM setting of the spinner when it is just about to start moving. Helps with fast starting the motors.
  - PWM setting of the chain when it is just about to start moving. Helps with fast starting the chain motor verse PWM setting.
  - Name of this Spreader.
  - Distance floor travels for 1 rev of the chain motor. During calibration in dump mode if the spreader is under or over delivering material use this number to bring weight measurement into line.

- **LEARN SPIN**
  - Learns Spinner motor verse PWM setting.
  - PWM setting. Used to calculate the exact motor RPM.
  - Oil Alarm setting. If oil temp exceeds this temperature an alert message is displayed.

- **LEARN CHAIN**
  - Learns Chain motor verse PWM setting.
  - PWM setting. Used to calculate the exact motor RPM.
  - Oil Alarm setting. If oil temp exceeds this temperature an alert message is displayed.

- **RPM CONSTANT**
  - RPM constant. Used to calculate the exact motor RPM.

- **OIL ALARM**
  - Oil Alarm setting. If oil temp exceeds this temperature an alert message is displayed.

- **NAME**
  - Name of this Spreader.
Now that the area meter has been wired up, the area meter needs the following settings configured.

**Step 1:**
- Turn unit on with power button.

**Step 2:** Observe main screen

**Twin floor screen**

- Oil temp
- Run hold and floor active indicator
- Spreader speed
- Spinner RPM and status. This Spinner is not PWM controlled
- Chain 2 status. Any errors with this chain are displayed here.
- Chain 1 status. Any errors with this chain are displayed here.
- The system is in hold, both chains motors are off. In this HOLD mode the Rate and material spread info are displayed.

**Single floor screen**

- Oil temp
- Spreader speed
- Spinner RPM
- Target RPM for Spinner. This Spinner is PWM controlled
- Single Chain RPM and status of chain is displayed here
- The system is in hold, both chains motors are off. In this HOLD mode the Rate and material spread info are displayed.
**Step 3: Select current job.**

A Pro system has up to 16 jobs to use. Select a new job, or if a single job machine rest the current job by holding the reset button for 5 sec.

Note: To enter the job menu quick press the power button.

Note: To select the JOB menu, hold down an arrow key.

Note: To Select a job, arrow to it. When on job required hold down the arrow key. Next the option is given to –RESET
- START
- VIEW
- NAME
- STOP

In this case we arrow down to START. With START highlighted, hold down any arrow key the start the selected job. Todays date is now displayed on the screen against the job number.

To RESET this job, either hold down the reset button, or goto the job menu for that job number and select RESET.

When a job is reset the date is no longer displayed against it, as all job data is cleared, xx.xxx.xx is displayed to indicate a reset job. Also be aware that if the date is invalid the job date will be displayed as xx.xxx.xx, to fix this issue, enter a valid date.

**Step 4: Select Fertilizer.**

As in step 3, navigate the menus with power and arrow keys. When in the "SET MATERIAL" screen, use the arrows to scroll through 20 material types. To select a material hold any arrow key down.

When a material is selected, that material is displayed in the next screen "EDIT MATERIAL". Here the Material Density, Rate, Width, Spin RPM and Door open setting can be amended. Hold Arrow down on any line to amend value, of OK with setting quick press power button to exit to main menu.
Keyboard:

The computer has 3 keyboard buttons,  ▲  or  ▼  and “ON”.
The 4th button is the reset button that allows the user to:
Reset button is multi functional. It can:
A. Reset set the current job totals, Area = 0hect etc..
B. Shut down the alarm when the alarm is sounding (eg: when low seed sensor has triggered).
C. Allows the meter to switch between auto and manual mode when tramlining.
quickly and simply clear call job information by simply holding this key down.

Connect Power:

The following information is displayed on the Area Meter Screen.
1: System boots up displaying boot information.
2: Unit serial number, model type eg: FM2-DRILL PRO, the current job.
3: Options that are enabled on this area meter. Eg: LOW SEED ALARM.
4: Current date and time.
5: Displays current number and description of the job that is being worked on.
6: FieldMate Logo followed by the main menu.

Turning the Area Meter Off:

When unit is on hold down the "ON" button.
1: Unit will save all totals and display the company logo.
2: LCD will go blank, unit is off.

Turning the Area Meter ON:

When unit is off hold down or quick press the "ON" button. The following information is displayed on screen.
1: Area meter Job, Model and unit type eg: metric.
2: Job number and description.
3: Displays system date and time.

Scroll Main Menu:

Using the  ▲  or  ▼  buttons move up and down the menu options. The double size text is the selected menu.
Enter any of the selected menu items by a quick press of the "ON" button.
Job Menu:

Selecting a JOB:
This is done when a job is to be reset or restarted. A FieldMate FM-DRILL PRO has 16 jobs and therefore selecting any of these jobs can be done by this method. A Job that has a "XX.XXX.XX" in the date location is an unallocated job.

1: In the Main Menu scroll to JOB.
2: Quick Press "ON" to enter JOB. Scroll to JOB using the ▲ or ▼ keys.
3: Hold ▲ or ▼ to select the job for adjusting.
4: Scroll to SELECT in the JOB SETUP screen Using ▲ or ▼ . At SELECT hold ▲ or ▼ to select the job.
   This job will be the current Job that work is logged to. Date and Time renewed . Job Totals and Job Name remain untouched.

Reset a JOB:
1: In Main Menu scroll to JOB.
2: Quick Press “ON” to enter JOB. Scroll to JOB using the ▲ or ▼ keys.
3: Hold ▲ or ▼ to select the job for adjusting.
4: Scroll to RESET in the JOB SETUP screen Using ▲ or ▼.
5: At RESET hold ▲ or ▼ to reset the job. All Totals, Date, Time and Name for this job will be cleared.
   Caution: Data cannot be recovered after this event.

Name a JOB:
1: In Main Menu scroll to JOB.
2: Quick Press “ON” to enter JOB. Scroll to JOB using the ▲ or ▼ keys.
3: Hold ▲ or ▼ to select the job for adjusting.
4: Scroll to NAME in the JOB SETUP screen Using ▲ or ▼ . At NAME hold ▲ or ▼ to name the job.
5: At the NAME job screen ▲ will change letter, ▼ will goto the next letter 
space. A maximum of 11 letters can be entered.
6: Quick press “ON” to exit.

View a JOB:
1: In Main Menu scroll to JOB.
2: Quick Press “ON” to enter JOB. Scroll to JOB using the ▲ or ▼ keys.
3: Hold ▲ or ▼ to select the job for adjusting.
4: Scroll to VIEW in the JOB SETUP screen Using ▲ or ▼ . At VIEW hold 
▲ or ▼ to select the job. Report screen will be displayed.
5 : Use ▲ or ▼ to scroll through the job report.
6: Quick press "ON" to exit. Viewing job does not unset the selected job.
7: When exiting to the Main Menu, the Job Report is set back to the Current Selected Job Number.

Operate Menu:

1: In Main Menu scroll to OPERATE.
2: Quick Press “ON” to enter OPERATE Mode.
3: Use the ▲ to display the following information types:
   - AREA
   - AREA sub (Reset this by holding down the ▲ or ▼ key)
   - DISTANCE (Total distance travelled, combines the RUN and HOLD distances)
   - WEIGHT of material spread for this job
   - RATE, amount of hect per hour are being spread
   - SPEED
   - Spinner RPM
   - Chain Left RPM
   - Chain Right RPM
   - All RPMs displayed on this screen
4a: Delete the displayed total by holding down ▲ or ▼ keys for 6 seconds.
4b: In Optional screens holding down the ▲ or ▼ for 6 sec turns the alarm on/off.
5: Use the ▼ key if the"Run Hold Mode” is "Keys", to switch the Field Mate into/out of Hold.
6: Quick press "ON to Exit to Main Menu.
**Area Menu:**
1: In Main Menu scroll to AREA.
2: Quick Press “ON” to enter AREA Mode.
3: Use the ▲ to display the following information types:
   - AREA. Area amount for the current job.
   - AREA SUB. Sub area total that can be reset any time.
   - AREA Total. Area of all jobs done by the meter.
4: Use the ▼ the key if the "Run Hold Mode" is Keys to switch the Field Mate into and out of Hold.
5: Quick press "ON to Exit to Main Menu.

**Distance Menu:**
1: In Main Menu scroll to DISTANCE.
2: Quick Press “ON” to enter DISTANCE Mode.
3: Use the ▲ to display the following information types:
   - DISTANCE. Distance travelled in RUN mode for the current job.
   - DISTANCE SUB. Distance travelled in HOLD mode for the current job.
   - DISTANCE TOTAL. Total distance travelled in HOLD and RUN mode for the current job.
4: Use the ▼ key if the "Run Hold Mode" is "Keys", to switch the Field Mate into and out of Hold.
5: Quick press "ON to Exit to Main Menu.

**Speed Menu:**
1: In Main Menu scroll to SPEED.
2: Quick Press “ON” to enter SPEED Mode.
3: Use the ▲ key to display the following information types:
   - RATE, Hect/Hr.
   - Time in Run mode.
   - Time in Hold mode.
   - Total job time.
   - Max speed.
   - Average Speed.
   - Oil Temp.
   - Time.
   - Date.
   - Area of current job.
   - Distance or current job.
   - Working machine width.
   - Large speed number displayed
4: Delete the displayed total by holding down ▲ or ▼ keys for 6 seconds.
5: Use the ▼ key if the "Run Hold Mode" is "Keys", to switch the Field Mate into and out of Hold.
6: Quick press "ON to Exit to Main Menu.
Setup Menu:

1: In Main Menu scroll to SETUP.
2: Quick Press "ON" to enter SETUP Mode.
3: Use the ▲ or ▼ keys to toggle scroll through the various setup options.
4: When at the required Setup option, to enter the Option hold down ▲ or ▼ key to enter the Setup mode for the Option.
5: When in the Option use the ▲ or ▼ keys to adjust the options settings. EG:

Screen 1:
- CONTRAST. Allows display clarity to be set up.
- DEBOUNCE. Allows meter to monitor extremely slow coulter shaft typically set to 20%.
- RUN / HOLD. The meter will go into HOLD mode as define be the setting here. For a Spreader there are 2 options, Single and twin floor. The operator will manually switch between run and hold using the run/hold switches. When in run mode and moving the computer will record are spread etc and control the chain motors accordingly. Other RUN/HOLD modes:
  - ONE FLOOR. For single floor spreader.
  - TWIN FLOOR. For twin floor spreader.
- DIST PULSE. Is the distance travelled by the spreader each time the speed sensor is triggered.
- WIDTH. Is the spreading width of the spreader. This number is used to work out area spread.

Screen 2:
- DATE. Set date here.
- SUPPORT. Enter a HELP DESK Phone number here of who to ring for Area Meter support.
- UNIT ID. Allows the unit to be named. Allows easy identification of a Meter.
- TIME. Set time here.
- CHAIN UPDATE. Sets the update rate for the PWM for the chain motor/s. Typically set to 2.

Screen 3:
- SPIN UPDATE. Sets the update rate for the PWM for the spinner motor. Typically set to 2. Only with the Single floor is the spinner computer controlled
- JOB SPIN RPM. Speed of the spinner for the current job
- MAX CHAIN RPM. Max RPM for the chain motor
- MAX SPIN RPM. Max RPM for the spinner motor
- DOOR OPENING. Door open setting for the current job

Screen 4:
- SPREADER RATE. Spreader rate for the current job
- PRODUCT. Name of product for the current job
- SPINNER PULSE. Number of Spinner pulses for 1 rev of the Spinner motor
- CHAIN PULSE. Number of Chain pulses for 1 rev of the Chain motor
- CHAIN 2 PULSE. Number of Chain pulses for 1 rev of the Chain motor (Note**)

Screen 5:
- FLOOR WIDTH. Width of the chain floor
- DENSITY. Density of the Material being spread
- BOX RATIO. Ratio between the chain motor and the floor out put shaft
- SPEED PULSE. Number of speed pulses to count before the DIST PULSE distance is travelled
- DUMP SPIN. In dump mode and Single floor this is the RPM of the Spinner

Screen 6:
- RATE FACTOR. If Over or under spreading compare to the set rate then this number with make the spreader eith incr the spreading amount or decrease the spreading amount.
  If set to 1.000 no change to the set rate. If set to 1.0500 then the rate will be reduced by 5%. If set to 0.9500 then the rate is increased by 5%.
- AUTO SAVE. Time interval for the meter auto saving date when machine is not moving.
- SPIN STOPPED. PWM setting that has the spinner almost moving, this helps for soft stoping and starting the spinner.
- CHAIN STOPPED. PWM setting that has the chain almost moving, helps for starting the chain/s.
- IMP NAME. Name for implement, as reported on the report

Screen 7:
- FLOOR FACTOR. Used to get the spreader outputing the correct weight in dump mode.
- LEARN SPIN. In single floor mode, this date is the last time the spinner motor was learn, this learning process makes quick start for the spinner motor possible.
- LEARN CHAIN. This date is the last time the chain motor was learnt, this learning process makes quick start for the chain motor possible.
- RPM CONSTANT. Number used to case calc the RPM for the motor. Typically 906.
- OIL ALARM. Temperature when the oil temp alarm will alert the user that the oil temp has reached this level.

Screen 8:
- SLOT OFFSET. Used to offset the material door setting area. Due to the chain taking up part of the output slot. Typically set to 2260
Setup Continued:

Info Menu:

1: In Main Menu scroll to INFO.
2: Quick Press “ON” to enter INFO Mode.
3: Use the ▼ or ▲ keys to toggle scroll through the various information screens.
4: Display a variety of information that may be useful to the user, or in some cases a valuable tool in working out if the area meter doing that job you want it to do. There are also low level information here that give insight into the correct operation of the computer system that makes this area meter what it is. Information may prove to be a useful tool used during installation.

Screen 1: - Meter logo graphic
Screen 2: - Help desk info
Screen 3: - Distance travelled pulse detection timing and detection info screen.
Screen 4: - Meter model information.
  - Firmware release info
  - Hours that the meter has been running, powered up and calculating area.
  - LCD contrast setting and backlight voltage on/off control state.
Screen 5: - Temperature of oil.
  - Voltage level applied to the meter.
  - Serial number.
  - RUN HOLD voltage level. Reflects run hold state in twin floor configuration.
Screen 6: - Software error detection. Should be all 0.
  - PWR is the number of power ups that the meter has had.
  - BOD may get counts, this is a low power detection.
Screen 7: - Auto save count down timer.
  - Average speed.
  - Time and distance calculator numbers.
Screen 8: - Real Time Clock/Calendar timer information
  - Run Hold state number.
  - Area calculator numbers.
  - Time number.
Screen 9: - Real rate versus filtered rate.
  - Area calculator numbers
Screen 10: - All motors rpm monitor screen
Screen 11: - States that options are on
Screen 12: - Calc to work out rpm of chain motor
Screen 13: - Spinner rpm with target rpm and pwm settings
Screen 14: - Chain Left with target rpm and pwm settings
Screen 15: - Chain Right with target rpm and pwm settings
Screen 16: - Weight calc
Screen 17: - Spinner rpm calc.
Screen 18: - Chain Left rpm calc.
Screen 19: - Chain Right rpm calc.
Screen 20: - Variable used to calculate the volume of the output slot of the spreader
Screen 21: - Extended variables to calculate the weight out of the spreader and computed weight output by the spreader for t rev of the chain motor
Screen 22: - Rate and how it is effected by the rate correction number
Report Menu:

1: In Main Menu scroll to REPORT
2: Quick Press “ON” to enter REPORT Mode.
3: Use the ▲ or ▼ keys to toggle scroll through the various Report screens eg:
   - Screen 1: Displays job number + name.
   - Screen 2: Area worked in RUN mode.
   - Screen 3: Distance travelled in RUN mode.
   - Screen 4: Distance travelled in HOLD mode.
   - Screen 5: Weight output.
   - Screen 6: Time moving in RUN mode.
   - Screen 7: Time stopped in RUN mode.
   - Screen 8: Time moving in HOLD mode.
   - Screen 9: Time stopped in HOLD mode.
   - Screen 10: Total time spent on this job.
   - Screen 11: Wheel moves in RUN mode.
   - Screen 12: Wheel moves in HOLD mode.
   - Screen 13: Measurements used for this job. Wheel size and width.
   - Screen 14:job start time and date.

4: While at the first report screen hold down the ▼ key to view the report of the next job. (PRO meters only)
5: While at the first report screen hold down the ▲ key to view the report of ALL jobs total. (PRO meters only)
6: Quick press "ON to Exit to Main Menu.

Clearing the Meter.
*Hold the Reset key down for 5 seconds to delete the current job information.

Reset all Jobs:
1: Turn FIELD MATE tm Off.
2: Hold down the ▼ key, "RESET ALL JOBS" is displayed and a scroll bar counts across the bottom of the screen.
3: Repeat step 2, 3 times to reset all the job totals.
4: The reset is complete when "RESET ALL JOBS DONE" is displayed.
Using the "FieldMate Reporter" software.

Use this application to download job information from any FIELD MATE PRO series Area Meter.

1: Connect the Meter to the download cable attached to the office PC.
   A: The Meter should connect to a DB15 cable
   B: The DB15 cable connects to a USB serial converter with DB15 adaptor fitted.
   C: The USB converter is connected to the USB port of the office PC.

2: Start the FieldMate Reporter software by double clicking on the icon.
   Note: If the reporter software is not installed, install from the factory supplied CD, or download the install files from www.areameters.com.

3: Ensure that the FM-DRILL PRO is turned on. This software will automatically detect that a PRO version FieldMate area meter is connected. When this occurs the "DOWNLOAD READY" button is displayed.

4: With the FM-DRILL PRO connected to the computer. Press the "DOWNLOAD READY" button. The data is instantly returned from the meter. At this point the "PRINT" and "SAVE" buttons will be enabled.
   Note 1: If a "DOWNLOAD READY" button is not observed, check that the comm port that is connected to the FM-DRILL PRO is the correct port. If required select the correct comm port using the "Connect Port" button.

5: Once the job info is downloaded, click on the job buttons to display the work done for each job.

6: To save the job info to a file press the "File Save" button.

7: Any or all job data can be printed at any time, using the "Print" button.

8: The Field Mate Reporter Application will only operate with the FM-DRILL PRO.

The FieldMate Area Meter can record all your machine based agricultural activities, making invoicing and job tracking a breeze.
Example of report

MASTER JOB# = SPREADER 34 - 000001,
CLIENT NAME =
IMPLEMENT NAME = AUTO SPREAD,
DATE = 00.JAN.2006,
TIME = 8.26.54PM,
FIRMWARE VERSION = SPREADER TWIN 43,
TWIN FLOOR,
AREA = 00007.3657 Hectares,
WEIGHT SPREAD = 000006102 KG,
RUN DIST = 00003.4348 KM,
HOLD DIST = 00000.4473 KM,
TIME_RUN_MOVING = 0.33 Hour.Min,
TIME_RUN_STOPPED = 0.58 Hour.Min,
TIME_HOLD_MOVING = 0.03 Hour.Min,
TIME_HOLD_STOPPED = 1.06 Hour.Min,
TIME_TOTAL = 2.41 Hour.Min,
TICK_RUN = 004334,
TICK_HOLD = 000568,
WHEEL SIZE = 000500 MM,
MACHINE WIDTH = 024000 MM,
MATERIAL SPREADER ID = 000000,
Material #000001,
Name = UREA-1,
DENSITY = 00750 KG/M3,
RATE = 01000 KG/HA,
WIDTH = 02400 CM,
SPINNER RPM = 000000 RPM,
DOOR OPENING = 000100 MM,
END
Example of configuration

MATERIAL CURRENTLY LOADED TO SPREAD:000000, Job:000000, Material:000001,
Name:UREA-1, DENSITY = 007500 KG/M3, RATE = 001000 KG/H, WIDTH = 002000 CM,
SPINNER RPM = 000000 RPM, DOOR OPENING = 000010 MM.

GENERAL SYSTEM DATA:
Run Hold mode = TWIN FLOOR, Spread Setup = Twin Floor, Firmware Version = SPREADER TWIN 43,
wheel circumference = 000830, speedo_debounce_limit = 000020, run_held_sensor = 000004,
drift_width = 002400, backlight_mode = 000001, unit_type = 000001, Kcf_PWM = 000000,
PWM_Enabled = 000000, motor_1_connected = 000000, motor_2_connected = 000000, drill_wheel_puck = 000005,
Reference_speed = 000004, rpm = 000005, speed_hours_moving = 000000,
speed_hours_run_stopped = 000003, speed_hours_held = 000000, speed_hours_total = 000007,
Reference_speed = 000005, Support number = 021553759.

SPREADER SETUP VARIABLES:
spread_rate_density = 007500, spreader_ratio = 001000, drift_width = 002400,
shaft_1_rpm_limit = 000000, spreader_face_opening = 000010, spreader_width = 000727,
spread_ratio = 000000, spreader_pulse_count_per_distance = 000001, spreader_spider_cylinder_per_mm = 000000,
start_time = 000000, start_up_time = 000000, start_up_speed = 000000,
start_up_speed = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
start_up_start_time = 000000, start_up_start_speed = 000000, start_up_start_time = 000000,
start_up_start_speed = 000000, start_up_start_time = 000000, start_up_start_speed = 000000,
## User System Settings from SETUP Menu.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTRAST</td>
<td>25</td>
</tr>
<tr>
<td>DEBOUNCE</td>
<td>20</td>
</tr>
<tr>
<td>RUN/HOLD</td>
<td></td>
</tr>
<tr>
<td>DISTANCE PULSE</td>
<td></td>
</tr>
<tr>
<td>WIDTH</td>
<td></td>
</tr>
<tr>
<td>DATE</td>
<td>Now!</td>
</tr>
<tr>
<td>SUPPORT</td>
<td></td>
</tr>
<tr>
<td>UNIT ID</td>
<td></td>
</tr>
<tr>
<td>TIME</td>
<td>Now!</td>
</tr>
<tr>
<td>CHAIN UPDATE</td>
<td></td>
</tr>
<tr>
<td>SPIN UPDATE</td>
<td></td>
</tr>
<tr>
<td>JOB SPIN RPM</td>
<td></td>
</tr>
<tr>
<td>MAX CHAIN RPM</td>
<td></td>
</tr>
<tr>
<td>MAX SPIN RPM</td>
<td></td>
</tr>
<tr>
<td>DOOR OPENING</td>
<td></td>
</tr>
<tr>
<td>SPREAD RATE</td>
<td></td>
</tr>
<tr>
<td>PRODUCT</td>
<td></td>
</tr>
<tr>
<td>SPINNER PULSE</td>
<td></td>
</tr>
<tr>
<td>CHAIN PULSE</td>
<td></td>
</tr>
<tr>
<td>CHAIN 2 PULSE</td>
<td></td>
</tr>
<tr>
<td>FLOOR WIDTH</td>
<td></td>
</tr>
<tr>
<td>DENSITY</td>
<td></td>
</tr>
<tr>
<td>BOX RATIO</td>
<td></td>
</tr>
<tr>
<td>SPEED PULSE</td>
<td></td>
</tr>
<tr>
<td>DUMP SPIN</td>
<td></td>
</tr>
<tr>
<td>RATE FACTOR</td>
<td></td>
</tr>
<tr>
<td>AUTO SAVE</td>
<td></td>
</tr>
<tr>
<td>SPIN STOPPED</td>
<td></td>
</tr>
</tbody>
</table>
Where the word “FIELD MATE™” Area Meter appears it means the “FIELD MATE™” Area Meter circuit board which includes a hard ware component and a leased Firmware component and/or Field Mate Download Application. Does not refer to any additional wiring added to the “FIELD MATE™” Area Meter system during installation. The Firmware running in the “FIELD MATE™” Area Meter and/or Field Mate Download Application is a zero fee leased copy and is not part of the “FIELD MATE™” Area Meter purchase agreement. The Firmware and/or Field Mate Download Application lease runs for the life of the product. G-Tech NZ Ltd remains the sole owner of the Firmware running in the “FIELD MATE™” Area Meter and/or Field Mate Download Application.

Express Limited warranty.

G-TECH NZ LTD warrants the “FIELD MATE™” Area Meter to be free from defects in materials and workmanship for a period of 12 months from the original date of sale to the end user or for a period of eighteen months from the date of factory shipment, whichever is sooner. If the product fails, customers should at their cost return the “FIELD MATE™” Area Meter to G-TECH NZ LTD. At the exclusive option of G-TECH NZ LTD, to either:

(a) Repair the “FIELD MATE™” Area Meter.
(b) Replace the “FIELD MATE™” Area Meter.
(c) If G-TECH NZ LTD is unable to replace / repair or correct firmware or hardware errors, G-TECH NZ LTD will refund the price paid for the “FIELD MATE™” Area Meter.

These are your sole remedies for any breach of warranty. The warranty does not apply to “FIELD MATE™” Area Meter’s which have been improperly installed, subjected to extremes beyond the limits of G-TECH NZ LTD specifications, or which have been physically damaged. Nor does it apply to “FIELD MATE™” Area Meter’s found to be defective due to abuse, electrical discharge, under temperature, over temperature, improper power application, damage resulting from acts of war or any damage incurred due to acts of nature, salt or fresh water immersion or spray, or improper or unauthorized repair. Freight charges for products returned to G-TECH NZ LTD should be pre-paid by the customer. G-TECH NZ LTD will prepay freight charges for returning the “FIELD MATE™” Area Meter to the customer, provided that the “FIELD MATE™” Area Meter proved defective under the terms and conditions of the warranty.

Limitation of liability

In no event will G-TECH NZ LTD or any person involved in the creation, production or distribution of the G-TECH NZ LTD “FIELD MATE™” Area Meter be liable to you on account of any claim for any damages including any lost of profits, lost savings, or other special, incidental, consequential, or exemplary damages, including but not limited to any damages assessed against or paid by you to any third party, rising out of the use, liability to use, quality or performance of the G-TECH NZ LTD “FIELD MATE™” Area Meter, even if G-TECH NZ LTD or any such person or entity has been advised of the possibility of damages or for any claim by any other party. G-TECH NZ LTD total liability under any provision of this agreement is in any case limited to the amount actually paid by you for the “FIELD MATE™” Area meter.

Description of other rights and limitations.

Limitations on reverse engineering, Decompilation and Disassembly. You may not reverse engineer, decompile, disassemble or upload the Firmware.

Rental. You may not rent or lease the “FIELD MATE™” Area Meter.
Copyright. All title and copyrights in and to the "FIELD MATE™" Area Meter, the accompanying printed material and copies of the firmware are owned by G-TECH NZ LTD. You may not copy the printed material accompanying the "FIELD MATE™" Area Meter. All rights not specifically granted under this agreement are reserved by G-TECH NZ LTD.

ACCEPTANCE OF TERMS
I, the undersigned Purchaser of the "FIELD MATE™" Area Meter computer, have read the above Warranty and Limitations of liability Agreement and agree to the conditions and limitations as stated above.

Unit Serial Number : ...........................................................................
Start Date of Agreement : .................................................................
Purchaser Company Name : ................................................................
Purchaser Address : ...........................................................................
Purchaser Name Printed : ......................................................................
Purchaser Signed : ............................................................................