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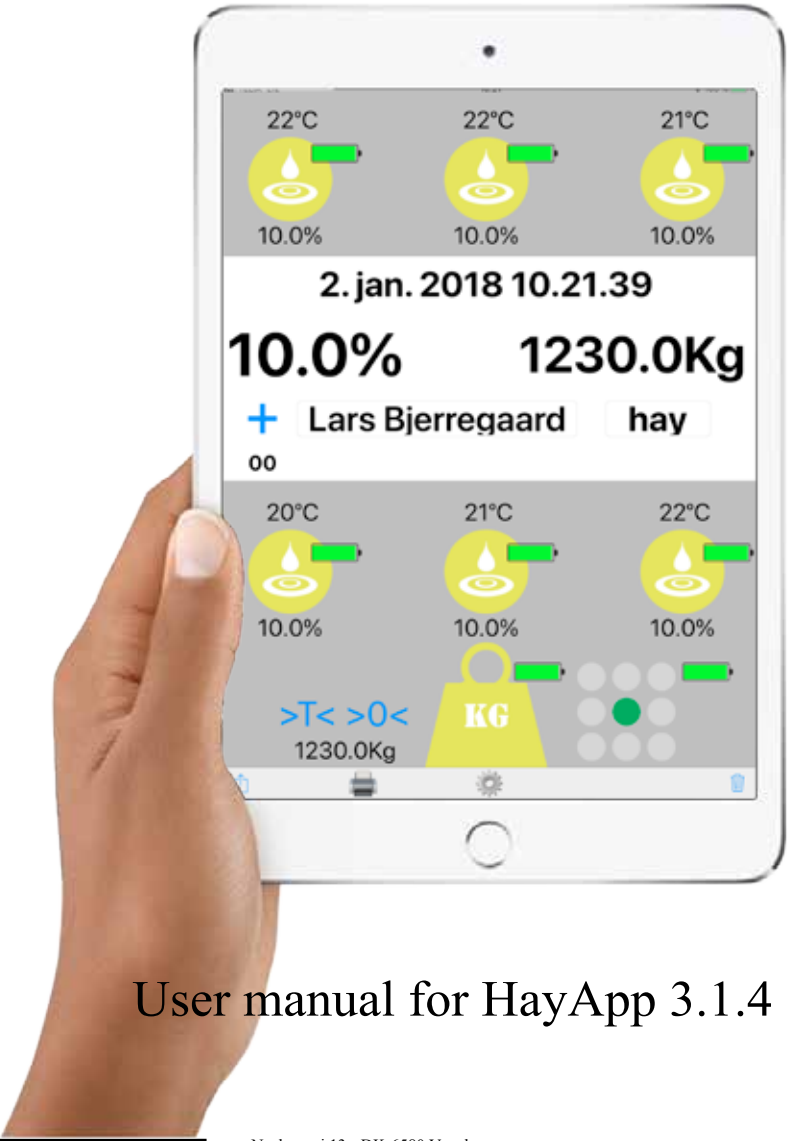

User manual for HayApp 3.1.4

Version : UK 2018_V3.1.3 R1

Nyskovvej 13 · DK-6580 Vamdrup
Tlf. +45 76 92 02 00 · Fax +45 75 58 06 31
E-mail: scales@farmertronic.com
www.farmertronic.com

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Description

HayApp is a user-interface for HayWay - an equipment for telescopic handlers etc. The HayWay measures moisture, temperature and weight of bales (straw and hay).

From the HayWay - moisture, temperature and weight data are send via a BlueTooth link to an iPad mini. By sending them wirelessly no cables are needed between the cabine and the equipment, which makes it easy to install and maintain. All user interaction with the equipment is done by means of the HapApp installed on the iPad.

So, the HayApp is a user-interface run on an iPad mini which enables a driver of a telescopic handler to measure moisture, temperature and weight of bales (straw and hay) from the cabine.

The readings can be averaged & summed, as they can be communicated to a central administration for further processing, seamlessly via the iCloud Drive interface offered with HayApp.

A true ***All in One*** solution

Telescopic handler with 6 spears and weighing-system. iPad is mounted in cabin. Bluetooth transfer between spears & weighing-system to iPad. No wires to cabin.

Hardware

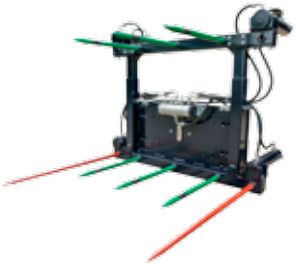
iPad Mini :

- HayApp is intended for iPad Mini 4 or higher.
- iPad Mini must be running iOS9.3 or higher.
- HayApp only works in upright orientation
- HayApp used the Bluetooth LE version 4.0.
- If Wifi isn't accessible a SIM-card must be installed
- An Apple ID account must be associated to the iPad
- Data storage is done in iCloud Drive

Mount :

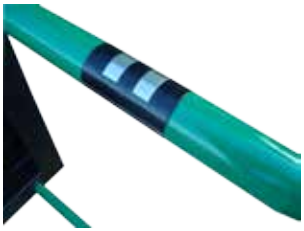
- Mount for iPad Mini 4.
- The iPad can easily be "installed"
- The iPad is secure and easy to operate

HayWeigher :



- HayWay is a telescopic handler attachment which comprises of frame, spears and intergrated scale (capacity 1,5 T).
- HayWay is compatible with HayApp V3.1.4
- HayWay is equipped with up to 6 spears
- Integrated scale (capacity 1500 Kg)
- Auto On/Off with rechargeable battery
- Can be used with 12Vdc mashine-supply
- Optional hydraulic Push-Off system
- Optional mashine-mount

EuroSpear :



- A spear with interface for the HayApp V3.1.4
- Auto On/Off for a 9 V_{dc} - 11.8 V_{dc} supply
- Easy to mount in bale-frame.
- Meassures moisture in bales of hay & straw
- Meassures temperature in bales of hay & straw

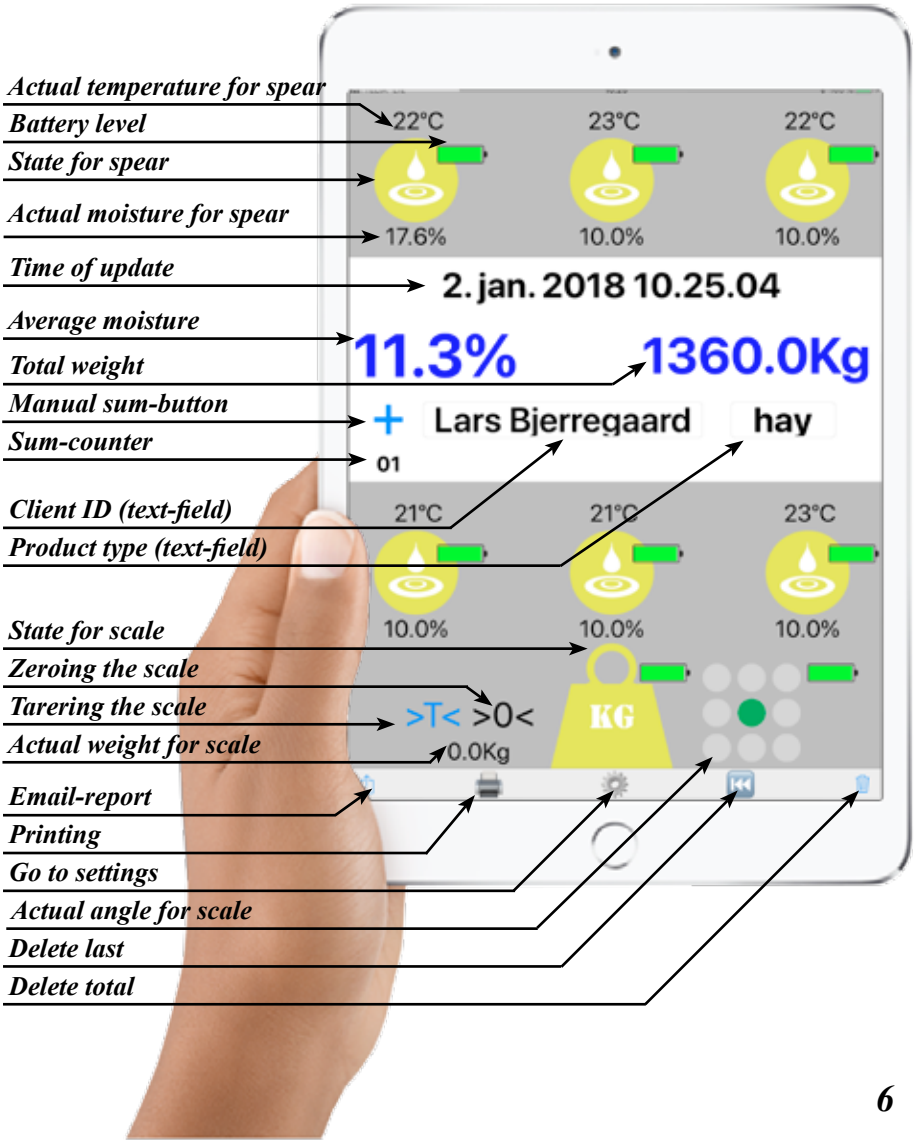
Haymatic BLE :

- Haymatic BLE is a funcionally enhanced Haymatic digital. The Haymatic BLE is equipped with a Blue-Tooth interface to an iPad running the HayApp 3.1.4 or an iPod (model Touch) / iPhone (6s or higher) running the StrawApp 3.1.4

- Haymatic BLE is:
  - Compatible with HayApp V3.1.4
  - Compatible with StrawApp V3.1.4

- Haymatic BLE uses:
  - same spears as Haymatic digital
  - same handle as Haymatic digital

Symbols & terminology



Actual temperature for spear : 21°C

The temperature is recorded in the range 10 - 90 °C

Values below 10 °C is recorded as 10 °C

Values above 90 °C is recorded as 90 °C

Battery level :

The charge level for the battery in the supply is shown as 0 - 100 %

If the charge becomes less than 10 %, the colour of the level changes to red. Immediate recharge is recommended. Very limited time before the spear is turned off automatically.

State for spear :

Spear is not active.

- Either the spear isn't mounted or isn't enabled in the settings.

- Or the spear hasn't yet connected via Bluetooth.

Note if the spear is mounted, it will automatically power up and connect when machine moves. If the machine hasn't moved for 5 minutes, the spear automatically turns off, which will render the spear - inactive, i.e. gray

State for spear cont. :

The spear is active.
The moisture reading is updated regularily (every second)
The readings will contribute to the average moisture readout.

The spear reports an ERROR.
The moisture-limit or temperature -limit are exceeded.
The limits are setable in “settings”.
They can be disabled too.

Haymatic - BLE er active.
A Haymatic BLE is connected to the iPad. The readings from this manual instrument is updated regularily. The readings will contibute to the avarage moisture readout.

Actual moisture for spear :

10.2%

The moisture level of the bale is recorded in the range 10 - 80 %

Values below 10% is recorded as 10%

Values above 80% is recorded as 80%

Time of update :

Date & time

Either the last time a value has been received from either of the spears or the scale.

Or the last time a value has been stored on the disc or in the Cloud.

The value is stored along with the readings on the disc / in the Cloud.

Average moisture :

11.9 %

When Black : The value is the average value of all the active spears.

11.9 %

When Blue : The value is the average value of all the active spears for multiple measurements. The number of measurements is the number of times the value has been stored to disc / cloud since last reset (trash bin tapped).

11.9 %

When red : One ore more spear have registered a moisture that exceeds the level set in Max moisture-settings (see settings). The bale should be rejected / discarded.

Total weight :

500.0 Kg

When Black : The value is actual weight of the bale. The Total-weight is 0, as no value has yet been stored to disc / cloud

500.0 Kg

When Blue : The value is the total weight, i.e. sum of multiple bales. The number of bales which has been weighed is the number of times the value has been stored to disc / cloud since last reset (trash bin tapped)

500.0 Kg

When Red : The weight exceeds the level set in Max weight-setting (see settings) The bale should not be lifted as it overloads the system.

Manual Sum - button : +

When Blue (only present when manual sum mode is seleceted - see settings)

Every time the Sum - button is tapped following happens:

- the averaged value of the actual moisture-readings of all active spears is stored on the disc / Cloud.

- a new average value for all moisture readings since last reset is made and shown as “Average moisture”. The value is also stored on the disc / cloud.

- the highest temperature is stored on the disc / cloud.

- the actual weight of the bale is stored on the disc / cloud.

- a new total weight since last reset is calculated and shown as “Total Weight . The value is stored on the disc / cloud.

- the current date & time is read from the internal clock. The value is displayed in “Time for update” and stored on the disc / cloud.

- a marker in the file is set to <+>

Sum-counter : 00

Counter for the number of registrations made to disc / cloud since last reset (trash bin tapped), i.e. the number of “bales” in the average.

Client ID - text field : Type Client ID

Client reference. Tap the field and the iPad keyboard is activated. Any text-string can be entered as client reference to the current session.

If set in "Client / Product settings" the text-field is obligatory and then only if both a Client ID & a Product type has been entered can the sum-function be operated (either manual or automatically). Both fields will then be flushed when a session is finished (delete button activated.)

Note : Do remember to end the typing by means of the return-key.

NOTE :
The "Contact-book" can be used for Client selection by a left-swipe in the textfield.

Product type - text-field : Type

Product reference. Tap the field and the iPad keyboard is activated. Any text-string can be entered as product reference to the current session.

If set in "Client / Product settings" the text-field is obligatory and then only if both a Client ID & a Product type has been entered can the sum-function be operated (either manual or automatically). Both fields will then be flushed when a session is finished (delete button activated.)

Note : Do remember to end the typing by means of the return-key.

State for scale :

Spear is not active.

- Either the scale isn't mounted or isn't enabled in the settings.

- Or the scale hasn't yet connected via Bluetooth.

Note if the scale is mounted, it will automatically power up and connect when machine moves. If the machine hasn't moved for 5 minutes, the scale automatically turns off, which will render the scale - inactive, i.e. gray

The scale is active.

Actual load is updated every second

The readings will contribute to the calculation of the "Total Weight"

The scale reports an ERROR.

The load-limit is exceeded.
The limit is setable in "settings".
It can be disabled too.

DAMAGE:
Overload can damage the weighing system .
DANGER:
Overloading the system can be dangerous, as stability of the loader is affected.

State for scale cont. :

The scale is locked.
This symbol is displayed when a sumfunction has been activated. Either a Manual sum by "+" or the Auto sum by means of the scale.

"Manual sum":
When the "+" key is activated the scale is locked and the state changes from active (green) to locked (black). The average moisture, the max temp and the total weight is calculated and the data are stored on the disc / Cloud.

"Auto sum":
Starting from zero load, lifting a load will display the actual weight and the state will be active (green). When *the weighing system* determines that the load is stable a signal is send to the App. The App uses the signal just as the "+" in manual sum mode. The state changes to locked (black) and the average moisture, the max temp and the total weight is calculated and the data are stored on the disc / Cloud.
(Note, the "+" is not shown in "Auto sum" mode)

Common :

If the "Client / Product" function is enabled, then only when both Client and Product are entered, a sum can be performed.

To release the scale again (change from locked to active), the scale must be unloaded.

Zeroing the scale :

> 0 <

> 0 <

Zeroing the scale is important if the scale isn't displaying a 0 when the scale is unloaded. To be able to calculate the precise weight of the bale it's starting point has to be zero.

If the scale isn't displaying 0 when supposed to a "**long tap**" on this button will zero the scale.

Very important when using "Auto Sum" as the scales isn't unlocked before a clean zero is registered (alternatively use tare - see below)

If scale is "Zero" by >0<
The scale must return to 0 Kg to release the scale.

If scale is "Zero" by >T<
The scale must return to 0 kg or less to release the scale.

Note: If the zero is fluctuating and a clean / stable zero is unobtainable the scale must be serviced / calibrated by a service-technician.

>0< : Scale is zeroed
>0< : Scale is not zeroed

Tarering the scale :

> T <

> T <

Tarering of the scale can be used as a ***temporary*** "Zeroing" of the scale. The tare can be lifted again by reactivating the Tare-button.

Using "Tare" to "Zero" the scale will affect the way the scale is released after a sum-function has been performed.

If scale is "Zero" by >0<
The scale must return to 0 Kg to release the scale.

If scale is "Zero" by >T<
The scale must return to 0 kg or less to release the scale.

>T< : Scale is Tared
>T< : Scale is not Tared

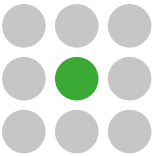
Actual weight for scale :

500.0 Kg

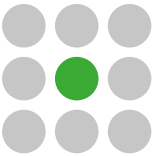
The actual load, i.e. the weight of the bale.

Note the value "freezes" when the Symbol for the scale is **black.** This indicates that this value is the stored value for this bale.

Actual angle for scale :



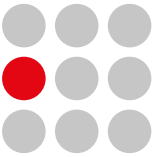
Option: is only visible if angle-sensor is mounted and it is active.
It ensures that only when the angle is within the correct window the sum-function can be activated.



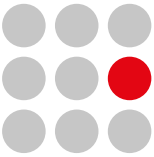
The Angle-sensor indicates that the angle is within ± 5° in both planes (side - side / back - forth).
Both Manual & Auto-sum can be performed

The Angle-sensor indicated that the scale is tilted more than 5° forward. As the angle is outside the window it is NOT possible to perform a sum-function.

The Angle-sensor indicated that the scale is tilted more than 5° backward. As the angle is outside the window it is NOT possible to perform a sum-function.



The Angle-sensor indicated that the scale is tilted more than 5° to the left. As the angle is outside the window it is NOT possible to perform a sum-function.



The Angle-sensor indicated that the scale is tilted more than 5° to the right. As the angle is outside the window it is NOT possible to perform a sum-function.

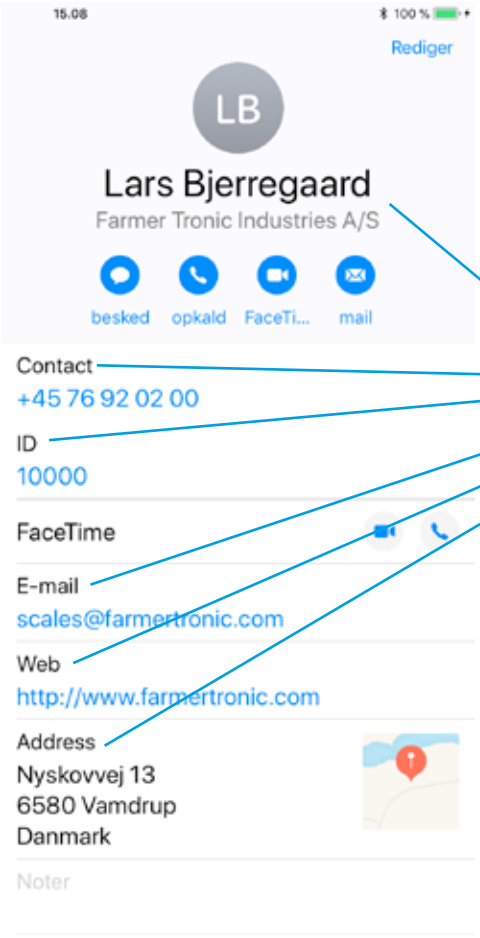
Contact :

The Contacts on the iPad can be used for:

● Quick-access for Client selection in the Client-ID field (swipe).

● Auto-lookup for email address when sending email-report.

● Lookup for header for both email- and printed- report.



To ensure correct data-access by the email & print function its important that the contact-entrys are formatted as below:

Name : Name & Surname
Company: Company name
Contact : Contact number (phone)
ID : 10000
E-mail : email to contact-person
Web : web-address
Address : company address

NOTE These label are custom-labels and they MUST be used to ensure that the App can retrive the information correctly from the contact-book.

Following ID's are special:

ID 10000 : selects header for email / printer.

ID 19999 : selects 1st. email

Send email-report :

By pressing this ”button” an email is setup with the current values.

Note. A valid email account must be set up on the iPad for this function to work.

Cancel Job-Rapport for “Client” Send

To : email 1 (ID19999), email 2 (ID10000), email 3 (Current client)

Cc/Bcc :

Subject : Job-Rapport for “Client”

Company	(Company	- ID 10000)
Address 1	(Address	- ID 10000)
Address 2	(Address	- ID 10000)
Phone :	(Contact	- ID 10000)
WEB :	(Web	- ID 10000)
E-mail :	(E-mail	- ID 10000)

Current date & time

Client	: Current Client
ID	: ID for current Client
Material	: Current Material
Moisture	: Average moisture
Temperature	: The Temperature
Weight	: The total weight
Weighings	: Number of measurements

Print :

Option: is only shown if printer is mounted and it’s active.

By pressing this “button” a print is made with the current values.

Farmer Tronic Industries A/S
Nyskovvej 13
6580 Vamdrup
Phone : +45-76920200
WEB : www.farmertronic.com
E-mail : scales@farmertronic.com

4. oktober 2018 16.50.10

Client	:	Karl Ove Knudsen
ID	:	10020
Material	:	Oat
Moisture	:	14.5 %
Temperature	:	20.5 C
Weight	:	7200.0 Kg
Weighings	:	12 Pcs.

Go to settings :

Pressing this button will bring you to the “settings”, which is placed in a flip-screen on the back of the normal user-screen.

All local settings relevant to the App, are placed here.
Global settings, like BlueTooth-/, iCloud-/ and language-/ settings etc. are in the general setup menu (standard iPad settings).

Delete last :

When a sum has been calculated, either automatically (when the setting “Auto Sum” is set and a sum has been made) or manually (when “Auto Sum” is disabled and manual sum “+” has been pressed) pressing the “Delete last” will remove the last entry in both “Average Moisture” and “Total Weight”. These values will then reflect the value they had prior to last “sum”.

The state of the scale will also change as it will be “unlocked” i.e. set to active.

The last entry of the file on the disc / Cloud is NOT deleted. Instead the values of the last entry are added to the file in negated state, i.e. preceded with a “-” and a marker in the file is set to <->

Note, this button is only visible if there are a values to delete. I.e. if no sum has been done, this button isn’t visible.

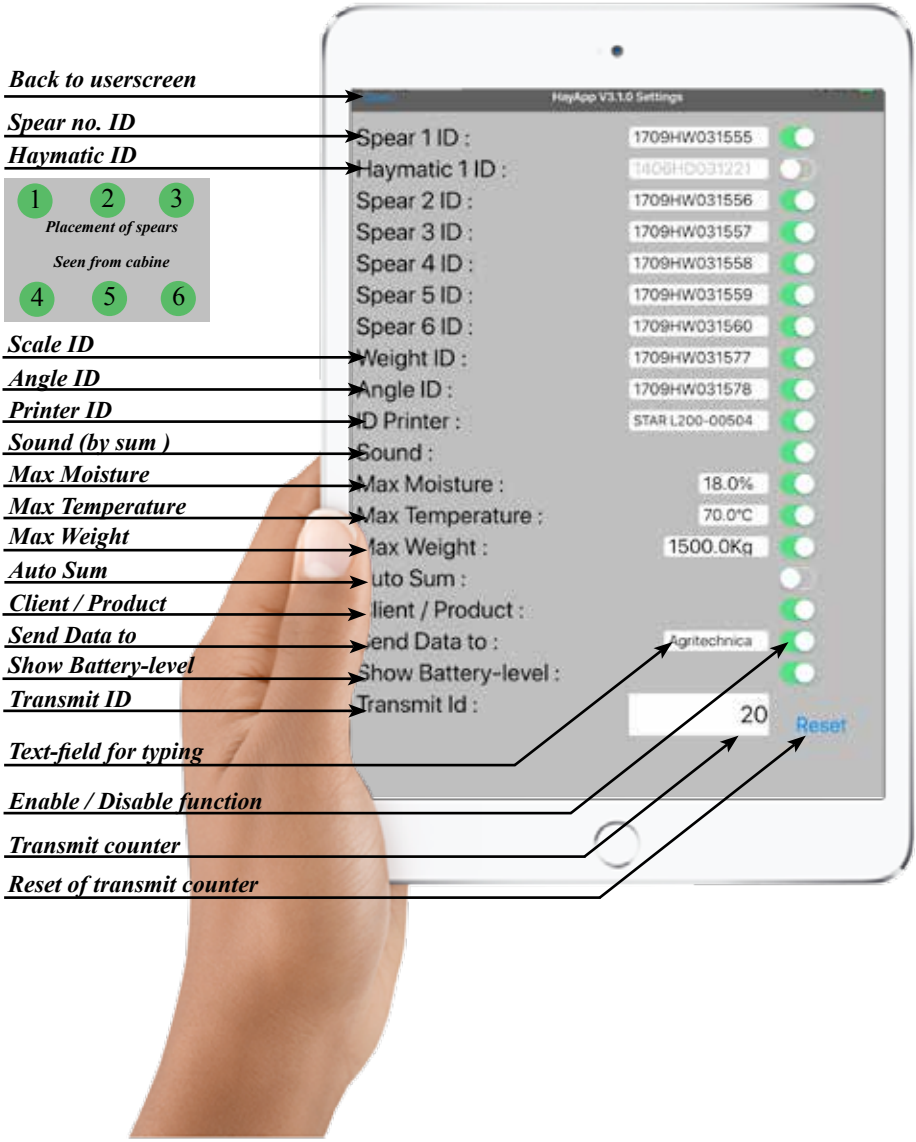
Delete total :

The “Average Moisture” is reset by pressing this button and it will now reflect the current moisture (average value of the active spears).

The “Total Weight” is reset and it will now reflect the current load of the scale.

The file on disc / Cloud is NOT erased. Instead the values are send as 0 and a marker in the file is set to <0>. In this fashion every reset can be found in the file.

Settings


Back to userscreen
Spear no. ID
Haymatic ID
1
2
3
Placement of spears
Seen from cabine
4
5
6
Scale ID
Angle ID
Printer ID
Sound (by sum)
Max Moisture
Max Temperature
Max Weight
Auto Sum
Client / Product
Send Data to
Show Battery-level
Transmit ID
Text-field for typing
Enable / Disable function
Transmit counter
Reset of transmit counter
HayApp V3.1.0 Settings
Spear 1 ID :
1709HW031555
Haymatic 1 ID :
Spear 2 ID :
1709HW031556
Spear 3 ID :
1709HW031557
Spear 4 ID :
1709HW031558
Spear 5 ID :
1709HW031559
Spear 6 ID :
1709HW031560
Weight ID :
1709HW031577
Angle ID :
1709HW031578
D Printer :
STAR L200-00504
Sound :
Max Moisture :
18.0%
Max Temperature :
70.0°C
ax Weight :
1500.0Kg
uto Sum :
lient / Product :
end Data to :
Agritechnica
how Battery-level :
Transmit Id :
20
Reset

Back to userscreen :

By tapping this “button” the screen is flipped back to the user-screen. All settings done while in settings are preserved.

Spear no. ID :
Scale ID :
Angle ID :

Spear 1 ID :
Spear 2 ID :
Spear 3 ID :
Spear 4 ID :
Spear 5 ID :
Spear 6 ID :
Scale ID :
Angle ID :

Each of the spears and the weighing system is equipped with a serial number in the form:
xxxxHWyyzzzz

xxxx = Year Month
yy = Hardware revision
zzzz = number

Example:
1501HW0301324

This number uniquely identifies the device. To enable the App to identify the device, each device has to be entered into the settings by it’s serial no.

The serial no of a device can be found on a label attached to the device

Type serial no

Entering the serial no is done in the text-field next to the ID label by means of the iPad Keyboard which is shown when the text-field is tapped.

Enable the device.

Disable the device.

Haymatic ID :

Haymatic 1 ID :

Every Haymatic BLE is equipped with a serial number in the form:
xxxxHDyyzzzz

xxxx = Year Month
yy = Hardware revision
zzzz = number

Example:
1508HD0301362

This number uniquely identifies the device. To enable the App to identify the device, each device has to be entered into the settings by it's serial no.

The serial no of a device can be found on a label attached to the device

Type serial no.

Entering the serial no is done in the text-field next to the ID label by means of the iPad Keyboard which is shown when the text-field is tapped.

Enable the device.

NOTE:
By activating the Haymatic <u>all</u> active spears will be deactivated.

Disable the device.

NOTE: All disabled spears must be enabled individually.

Printer ID :

ID Printer :

Every printer is equipped with a serial no.

This number uniquely identifies the device. To enable the App to identify the device, each device has to be entered into the settings by it's serial no.

Example:
STAR L200-00504

Type serial no.

Entering the serial no is done in the text-field next to the ID label by means of the iPad Keyboard which is shown when the text-field is tapped.

Enable the device.

Disable the device.

Sound :

Sound:

A "beep" can be enabled to sound when a sum is performed. In manual mode when the "+" is pressed and in auto-mode when the scale performs the sum-function.

The sound-level can be adjusted by means of the "sound"-buttons on the side of the iPad - provided that this function is set in the general settings of the iPad.

Enable the sound-function

Disable the sound-function.

Max Temperature :	Max Temp :	With this setting it is possible to activate an automatic warning.
	75°C	The level at which the warning must be active can be entered in the text-field next to the Max Temperature label by means of the iPad Keyboard which is shown when the text-field is tapped.
		Enable the limit
		Disable the limit
Max Moisture :	Max Moisture :	With this setting it is possible to activate a automatic warning & blocking for the “Auto Sum”.
	14.0 %	The level at which the warning / block must be active can be entered in the text-field next to the Max Moisture label by means of the iPad Keyboard which is shown when the text-field is tapped.
		Enable the limit
		Disable the limit

Max weight :

Max weight :

With this setting it is possible to activate a automatic warning & blocking for the “Auto Sum”.

1200.0 Kg

The level at which the warning / block must be active can be entered in the text-field next to the Max Weight label by means of the iPad Keyboard which is shown when the text-field is tapped.

Enable the limit

Disable the limit

Auto Sum :

Auto Sum :

Enabling the “Autosum” will make the sum automatic. When a load is lifted and the weight is stable the scale sends a sum-function equal to the manual “+”. (This manual “+”-button isn’t visible when auto sum is enabled).

NOTE:
If the angle-sensor is mounted no sum-function will be performed if the angle isn’t correct. This ensures only valid values in sum.

Enable the “Auto Sum”

Disable the “Auto Sum”

Client / Product :

Client / Product :

When this function is enabled it is obligatory to use the “Client” and “Product” fields. No sum-function, whether manual or auto will be performed unless both “Client” and “Product” is entered.

In fact in manual sum-mode the “+”-button will be deactivated and invisible until both “Client” and “Product” has been entered.

With this function enabled both “Client” and “Product” fields will be flushed, i.e. cleared, when a session is finished by pressing the “Delete total”-button. This ensures that a consions choise of “Client” and “Product” is done for each session.

Enable the functionen

Disable the function

Send Data to :

Send Data to :

This is the file-name to which the data are send.

HayApp

The file-name is the one which will be accessible in the iCloud Drive. The file-name entered here will automatically be appended with a .csv as to indicate that the data are stored in a CSV formatted file.

Data are also stored - by the same file-name - on a local drive on the iPad for the situations where iCloud isn't accessible for the iPad or the user wishes only to send a end of day update manually ("Auto Sum" disabled and Manual send button used)

The file-name entered in the text-field remains active until a new name is entered.

When file-name is changed the old is deleted on the local drive. The one in iCloud is NOT deleted.

In order to make safe save & open of files the action (old file deleted and new file opened) first takes place when the App is stopped (by means on the exit button on the iPad and then restarted by tapping the HayApp App symbol again.

Enable the storage of data

Disable the storage of data

Show Battery level :	Show battery level :	The supply level of each of the attached devices can be shown on the user-screen. This enables the user to monitor the level of the supply and take appropriate action should it becom low.
		Enable the supply level to be shown
		Disable the supply level.
Transmit counter :	Transmit ID :	Each time a value is stored on the local disc or the iCloud Drive the Transmit ID is incremented.
	0	The Transmit ID is written along with the data in the file and shown in the Transmit ID field in the Settings for reference.
Reset of transmit counter :	Reset	The value can not be altered by the user, only resetting it to 0 is possible, which is done by the "Reset" button. Note, the Transmit ID is the same as the "line"-number in the file (provided it hasn't been reset) Note, the Transmit ID is automatically reset to 0 when a new filename is entered.

File-format

File-format :

Format :

CSV - format: The file is formatted as a comma- separated file

Unicode : The Character-set is Unicode, i.e. 2 bytes for each character.

End of line : Every line ends with CR and LF.

Append : Every line is appended to the file. This means that the file is opened, a line is written and the file is then closed again. Data is newer removed from the file.

File-content :

Header :

As stated above, the file is a comma-separated file, hence it's possible to read it with ex. Excel.

To ease the use in Excel a row of headers (for the columns) is written when the file is first opened (example on page 32)

Flag :

1st. column is a flag
<0> : sum & average has been reset
<+> : new sum & average
<-> : last entry "erased"
<E>: Scale is being overloaded

Line no :

2nd. column is line no.
Line no. which follows transmitno.

Date & time:

3th. column is date & time.
The time of writing to line to the file.
Note format follows the format set in general settings of the iPad.

File-content cont. :

Actual moisture : 4th. column is actual moisture.
This value is the average value of the active spears. The value is used in the calculation of the total average moisture (column 6).

Unit : 5th. column is unit.
The unit for the previous column. In this case % as moisture is calculated in %

Average : 6th. column is average moisture.
This value is the average moisture over all measeurements made since last reset (tap on the bin-button). This values is equal to "Average moisture" on the iPad (see page 6)

Unit : 7th. column is unit.
The unit for the previous column. In this case % as moisture is calculated in %

Actual weight : 8th. column is actual weight.
This value is weight read at the time where the weight is "locked". I.e. the actual weight at the time where the sum is calculated. The value is the weight that is entered into the sum (see column 10)

Unit : 9th. column is unit.
The unit for the previous column. In this case kg as SI-unit for weight is kg.

Total weight : 10th. column is the total weight.
This value is the total weight, i.e the sum of all weighings since last reset (tap on the bin-button). This values is equal to "Total weight" on the iPad (see page 6)

Unit : 11th. column is unit.
The unit for the previous column. In this case kg as SI-unit for weight is kg.

File-content cont. :

Temperature : 12th. column is highest temperature.
This value is the highest temperature measured on any of the active spears.

Unit : 13th. column is unit.
The unit for the previous column. In this case °C as the SI-unit for temperature is °C .

ID : 14th. column is a textfield
This field is a client reference for the measurements made. Normally a numeric value. The content of this field is read from the contact-book on the iPad. So only if the contact-book is used to select clients a value is filled in here.

Client : 15th. column is a textfield.
This field is a client reference for the measurements made. The text-field corresponds to the “Client-ID” field on the iPad (see page 6).

Product type : 16th. column is a textfield.
This field is a product reference for the measurements made. The text-field corresponds to the “Product type” field on the iPad (see page 6).

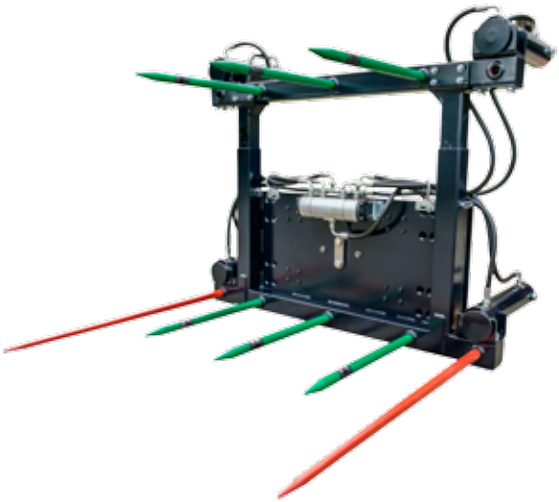
Example :

```
This file was Opened by HayApp 3.1.4 at:, Transmit ID, 2/12/2018 09.10.00, Current Moisture, Unit,
Average Moisture, Unit, Current Weight, Unit, Accumulated Weight, Unit, Current Temperature, Unit,
ID, Suppliername, Material type

<0>, 1, 02/12/2018 09.10.30, 0.0, %, 0.0, %,     0.0, Kg,     0.0, Kg, 25, C, 10001, Svend Olsen, Hay

<+>, 2, 02/12/2018 09.12.13, 0.0, %, 17.5, %,   220.0, Kg,   220.0, Kg, 25, C, 10001, Svend Olsen, Hay

<+>, 3, 02/12/2018 09.12.30, 0.0, %, 17.5, %,   150.0, Kg,   370.0, Kg, 41, C, 10001, Svend Olsen, Hay

<+>, 4, 02/12/2018 09.12.37, 0.0, %, 17.5, %,   130.0, Kg,   500.0, Kg, 22, C, 10001, Svend Olsen, Hay

<+>, 5, 02/12/2018 09.12.48, 0.0, %, 17.5, %,   130.0, Kg,   630.0, Kg, 25, C, 10001, Svend Olsen, Hay

<+>, 6, 02/12/2018 09.12.59, 0.0, %, 17.5, %,   210.0, Kg,   840.0, Kg, 25, C, 10001, Svend Olsen, Hay

<->, 7, 02/12/2018 09.13.58, 0.0, %, 17.5, %,  -210.0, Kg,   630.0, Kg, 25, C, 10001, Svend Olsen, Hay

<+>, 8, 02/12/2018 09.14.15, 0.0, %, 17.5, %,   440.0, Kg,  1070.0, Kg, 27, C, 10001, Svend Olsen, Hay

<0>, 9, 02/12/2018 09.14.49, 0.0, %, 0.0, %,     0.0, Kg,     0.0, Kg, 0, C, 10001, Svend Olsen,
```

DIY - Mounting (recommendation)

Conus - type :

Conus type : VB004-120



Spear - no of :

For 2 bales :

- A top row with 3 meassuring-spears
- A bottom row with 3 spears + 2 x 1200 mm spyd

Spears - horizontal mount :

Distance between spears :

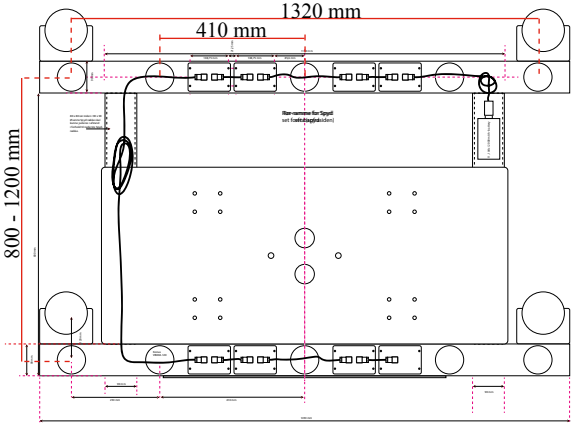
- Top row meassuring spears : 410 mm
- Bottom row meassuring spears : 410 mm
- Bottom row, 1200 mm spears : 1320 mm

Spears - vertical mount :

Distance between spears :

- Adjustable : 800 - 1200 mm

Spears - mount :



Sensor orientation :

The orientation of the two sensors must be vertical to ensure correct contact to the material.

Tighten the fasteningnut. Do note that - as with ordinary spears - the spear can become loose by the every day use. Make sure to re-tighten the fasteningnut regulary to avoid damages to the spear & wire.

Transmitter mount :

The transmitter-box must be mounted on a even surface where it's protected againt mechanical damage / excessive moisture. Please note that the BlueTooth unit must have free "view" to ensure good communication with the iPad.

Anglesensor mount :

The Anglesensor must be mounted on a even surface where it's protected againt mechanical damage / excessive moisture. Please note that the unit must have free "view" to ensure good communication with the iPad. Also make sure that the sensor is mounted in a manner so that it's reflects the angle of the attachment 1:1 i both directions (forward / backward and side to side). Sensor must be upward. Connector pointing opposite direction as the spears.

Wire mount :

The wires from the meassuring-spear are mounted with connectors as shown below. To be able to pass them trough the gland to the transmitter the two connectors must be removed - temporarily.

This is easily done by using a pin - applying a light pressure on the “lock” of the connector (shown below) and at the same time pulling the wire lightly.

When both connectors have been removed, pass the 4 wires and the end of the cable through the gland to the transmitter. Then tighten the glad firmly to avoid water ingress.

Wire mount, cont. :

The connectors must then be re-mounted. Make sure the wires are mounted correctly (see page 36 for ref)

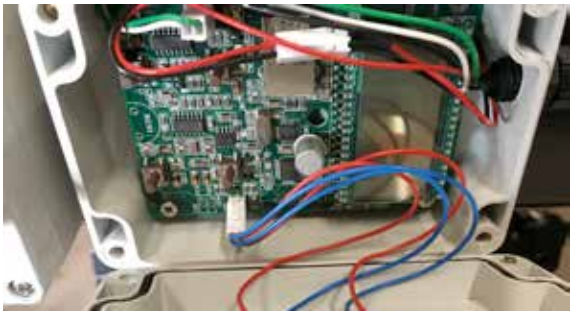
Connector mount :

The connector with green/white wire must be connected to the connector next to the USB-connector.

The connector with red/black wire must be mounted on the wireset with red/black wire comming from the pcb

Supply mount :

The supply connector is connected to the connector on the PCB on the opposite side of the USB-connector.



The lid is mounted and this concludes the mounting of spear & transmitter. Now connect the transmitters with the supply-cables.

The head supply-cable (the cable connecting to the supply) is mounted with a cigar-connector.

Supply :

As supply a 11.8 V_{dc} powerbank (with a cigar-connector) can be used. Alternatively the mashine-supply can be used. However - do note. The voltage **must** be in that range 9 - 12 $V_{dc.}$ when powered. Does the volate exceed the 12 V_{dc} incorrect readings can occure. The transmitter can be damaged by a supply-voltage below 7 V_{dc}

Recommended 11.8 V_{dc} supply with auto-shut off at low-voltage.

Rechargeable unit. With one connected to the equipment (as supply) the second can be placed in cabine where it can be charged by the mashine 12V_{dc}

In such a scheme it's easy to swap battery when a battery is empty. This makes it equipment independed of a supply from the mashine, i.e. no cable between mashine and equipment is nessesary.

Notes

Equipment information :

iPad s/n:	
iPad Pin-code:	
Apple-ID:	
Password:	
Spear 1 ID :	
Haymatic 1 ID :	
Spear 2 ID :	
Spear 3 ID :	
Spear 4 ID :	
Spear 5 ID :	
Spear 6 ID :	
Scale ID :	
Angle ID :	
Printer ID :	