GAZEEKA 870i

QUICK START GUIDE

November 2023

Software V.24

Troubleshooting

For all troubleshooting, please consult the online Model 870i Service Guide

vomax.com.au/documentation/gazeeka-model-870i-service-guide/

Owner's Manuals

870i Owner's Manual (AU)

vomax.com.au/documentation/model-870i-owners-manual-au/

870i Owner's Manual (US)

vomax.com.au/documentation/870i-manual-us/

485 Owner's Manual (AU)

vomax.com.au/documentation/model-485-owners-manual-au/

485 Owner's Manual (US)

vomax.com.au/documentation/gazeeka-model-485-manual-us/

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USERNAME: technician
PASSWORD: gazeeka

Congratulations on your purchase of a Gazeeka Model 870i microwave moisture system – our most advanced hay moisture system yet.

THIS QUICK START GUIDE IS NOT A SUBSTITUTE FOR READING THE MANUAL

The full manual documents can be downloaded, printed or viewed online via a smartphone, tablet or laptop computer.

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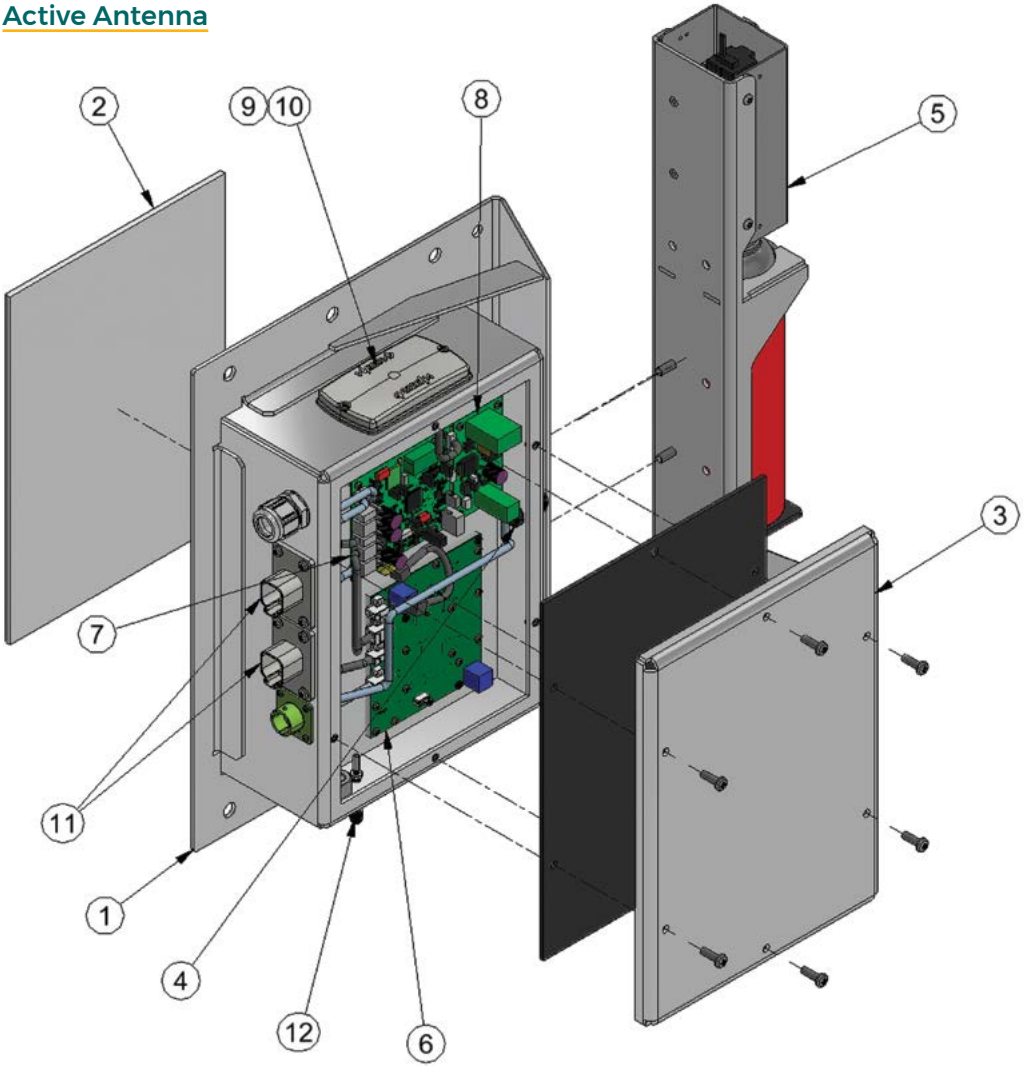
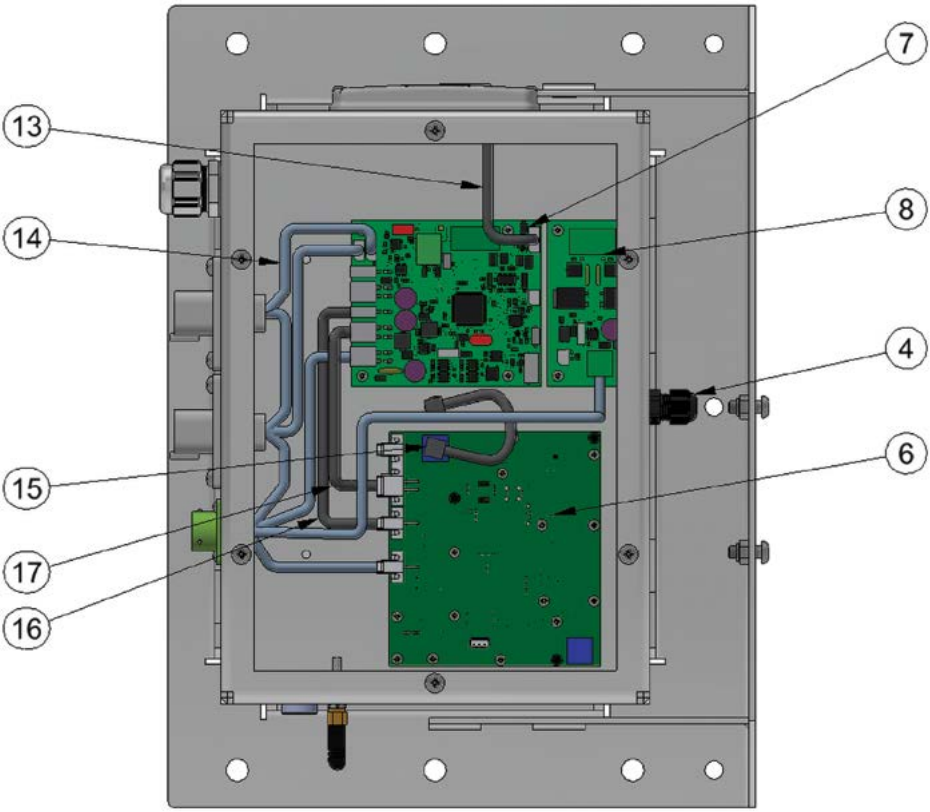
Active Antenna

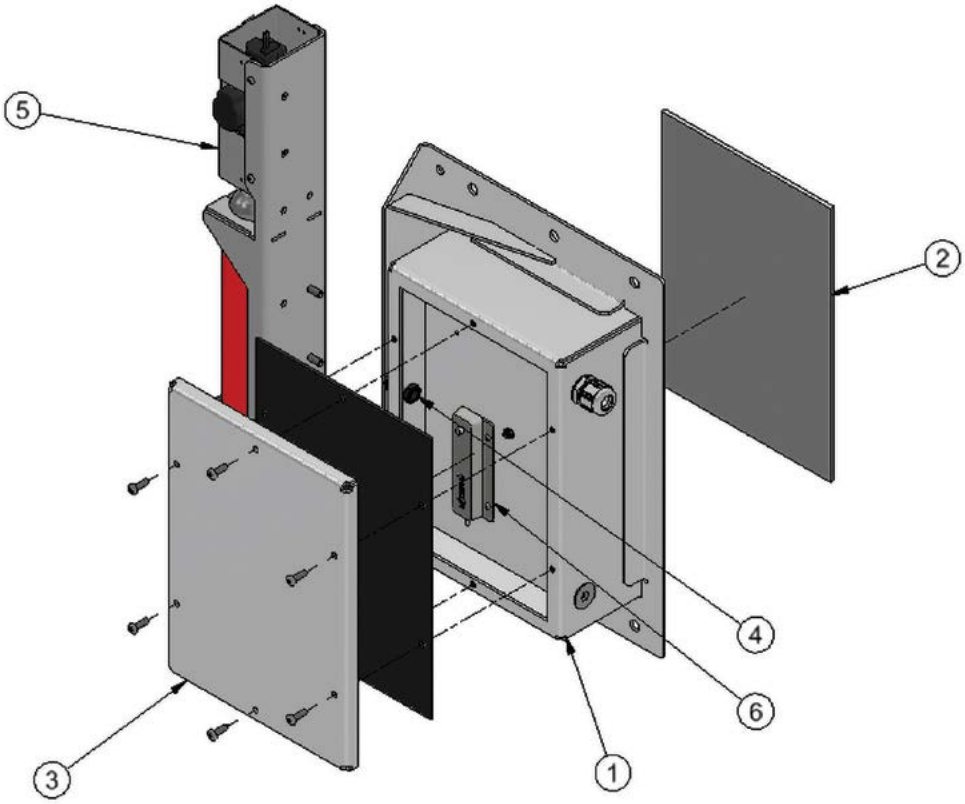


Item	Part Numbers	Gazeeka Stocked Item	Description
1	870i-B100-R01	Yes	Complete 870 Active Antenna with Lid
2	870-M128-R00	Yes	Polycarbonate Enclosure Window 279 x 199 x 4.5 (Opal) 870/851
3	870-M127-R03	Yes	Antenna Lid with Foam Gasket & Product Stickers
4	NCG12A	No	M12 Black Nylon Cable Gland
5	870MRU-B01-R00	Yes	870 Marker Unit (Universal)



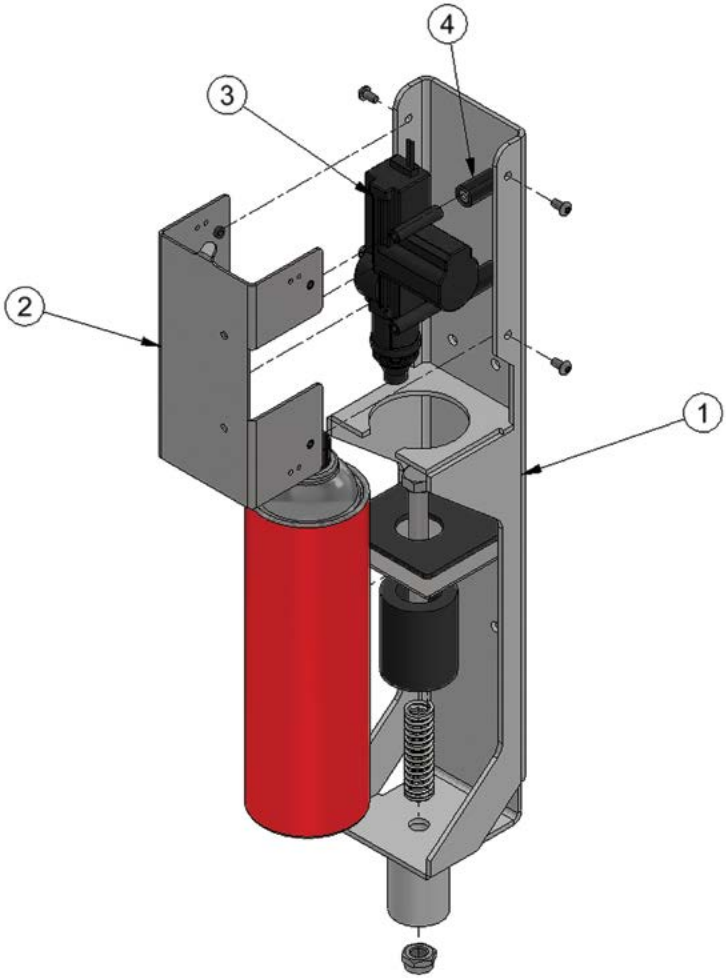
6	D1432-VMXV9p0	Yes	VMX-V9PO Microwave Module (D14326)
7	D1445	Yes	D1445 - ISObus Controller Module (G-Link Ready)
8	D14312-B	Yes	D14312-B Actuator driver module (Sequential output)
9	D14491B	Yes	D1449-1B GPS Receiver Module
10	870-M131-R00	Yes	GPS - Module Cover
11	DT046P-CL06	No	DT04-6P-CL06 Deutsch panel mount connector with cable loom
12	TX2400-JZ-3	Yes	870/180 Antenna Ariel (Bluetooth)
13	100-E40-R00	Yes	Wiring Harness - GPS Internal (G-Link) 870/485
14	870-E105-R01	No	G-Link Internal Cable Loom (CAN)
15	100-E01-R00	Yes	Microwave Cable - Internal STD - 870-851-760
16	870-E56-R00	Yes	Wiring Harness - Internal Power (2 pin to 2 pin Molex)
17	100-E41-R02	Yes	Wiring Harness - Internal Communication Link

Passive Antenna



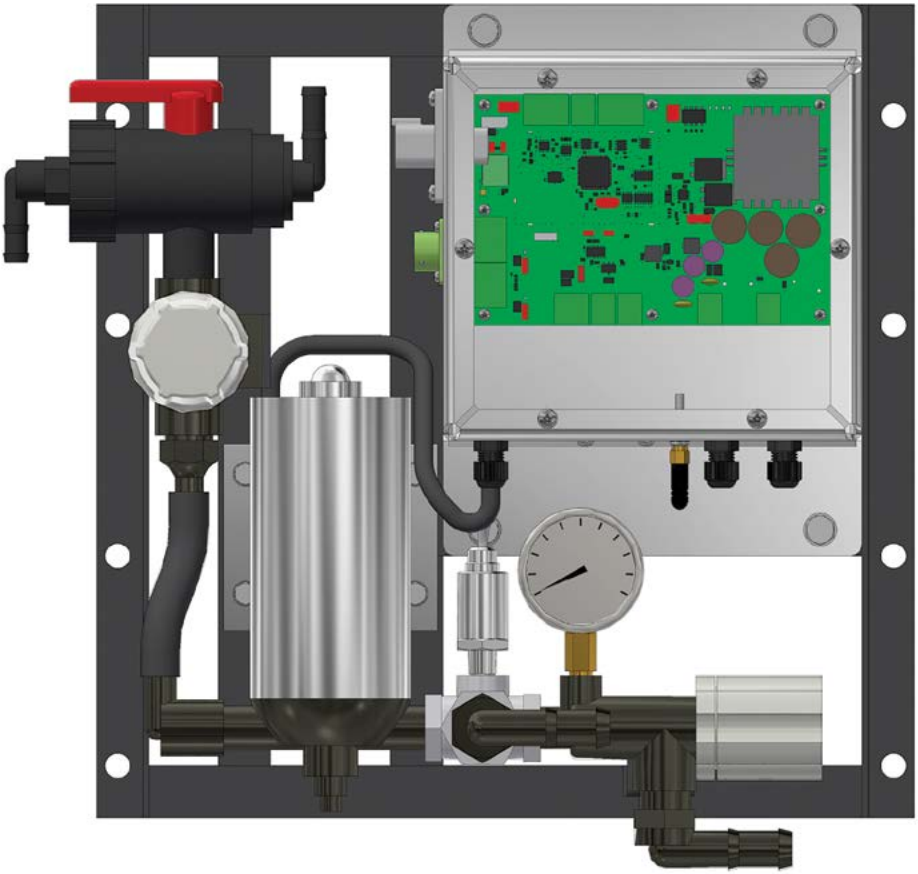
Item	Part Numbers	Gazeeka Stocked Item	Description
1	870s-B11-R01	Yes	Complete 870 Passive Antenna with CCM and Lid
2	870-M128-R00	Yes	Polycarbonate Enclosure Window 279 x 199 x 4.5 (Opal) 870/851
3	870-M127-R03	Yes	Antenna Lid with Foam Gasket & Product Stickers
4	NCG12A	No	M12 Black Nylon Cable Gland
5	870MRU-B01-R00	Yes	870 Marker Unit (Universal)
6	870-CCM-R00	Yes	870 - Cal-Check Module

Marker

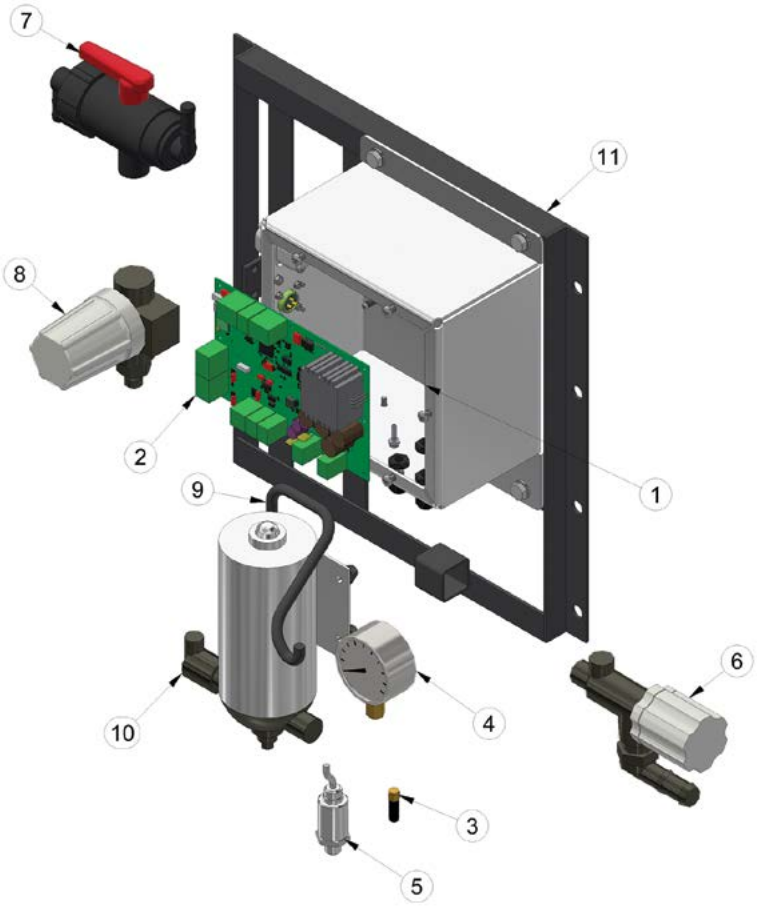


Item	Part Numbers	Gazeeka Stocked Item	Description
1	870-M102-R01	Yes	Marker Unit (870-M102-R00-Sh1&2 / 870-M103-R02)
2	870-M103-R02	Yes	Actuator Cover V2 (Marker Unit)
3	870-E69U-R00	Yes	Motor Driven Actuator (Universal)
4	870-M113-R00	Yes	Standoff in Black Acetal (Marker Support)

Self Contained Applicator

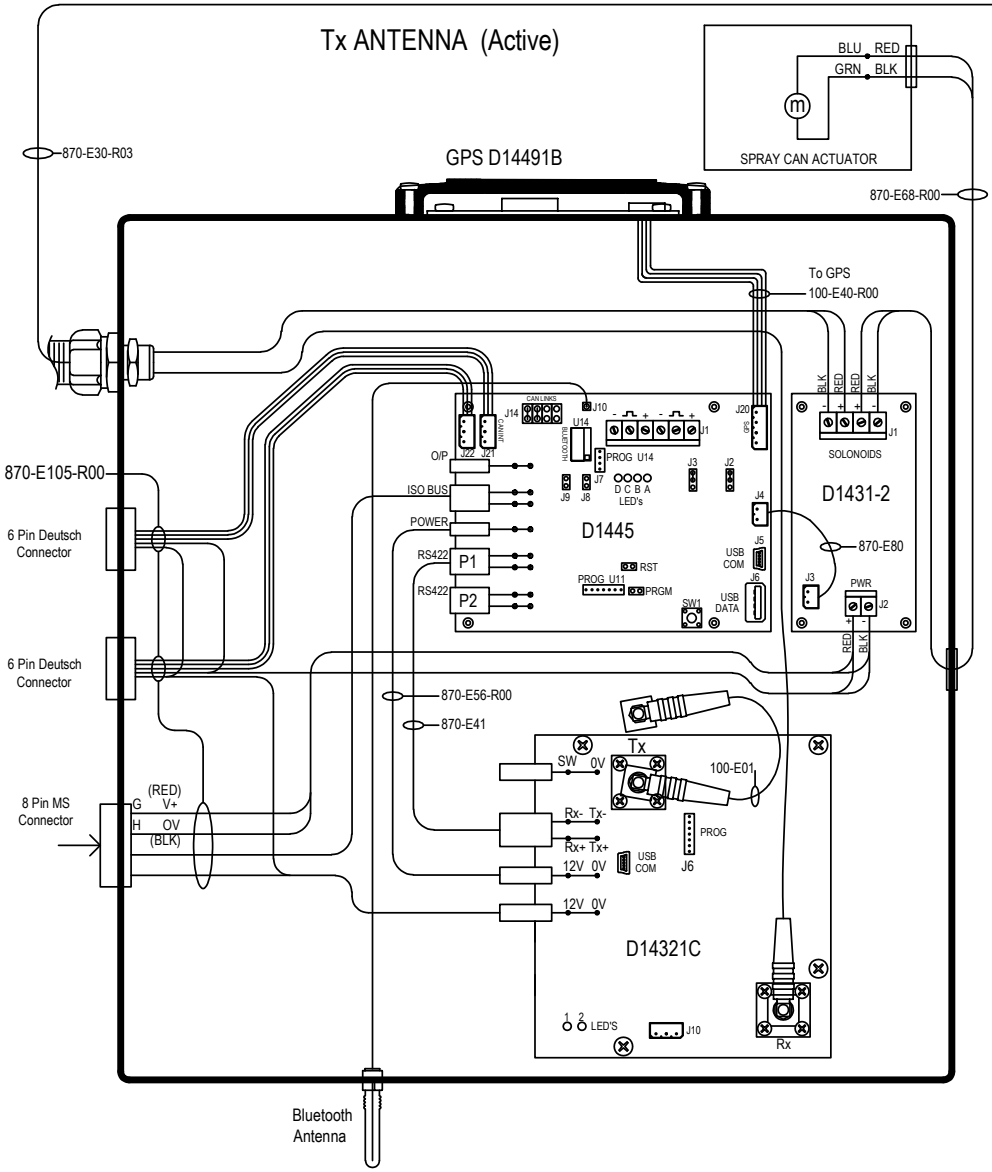


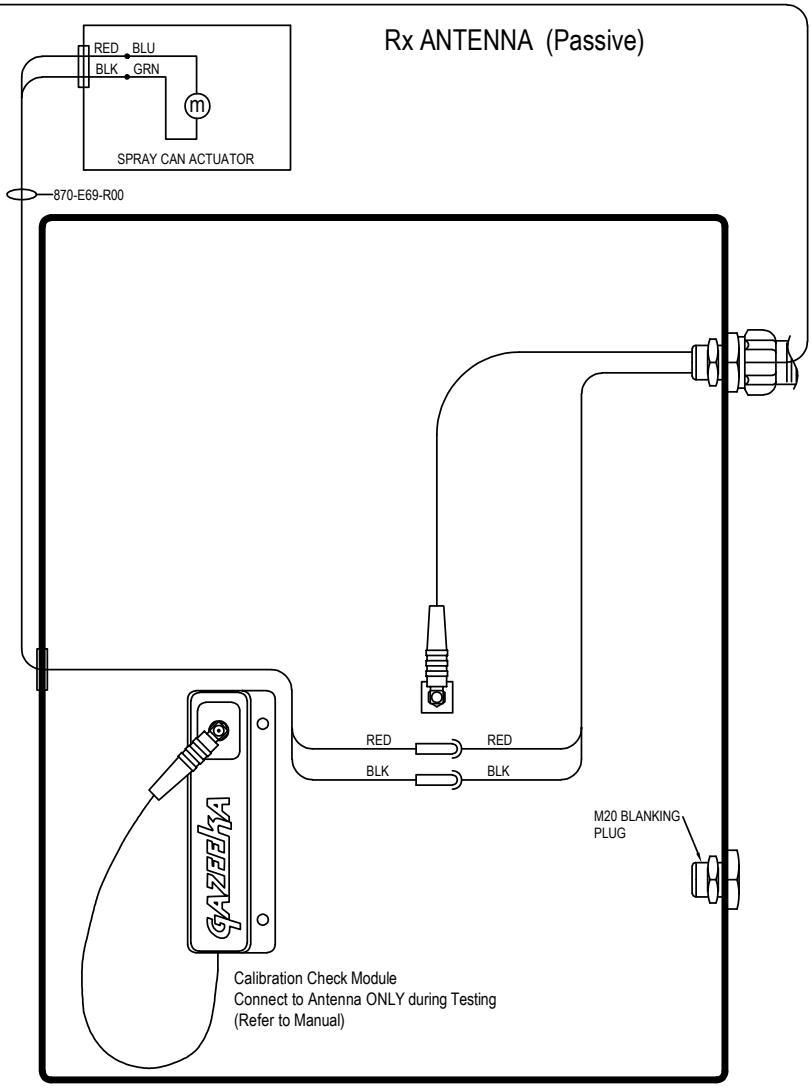
Part Numbers	Gazeeka Stocked Item	Description
485-M14-R01	Yes	Sprayer Body Bracket
QJ39684-1R-500-N	No	Nozzle Body Check Valve (right orientation)
QJ39684-1L-500-N	No	Nozzle Body Check Valve (left orientation)
485-M43-R00	Yes	Plate & Solenoid Control
485-E14-R00	Yes	Solenoid Power Cable
QS30EXQ	Yes	Optical Sender Module
QS30RRXQ	Yes	Optical Receiver Module
RKC4.5T-13/TEL	Yes	Optical Sensor Loom (13m)



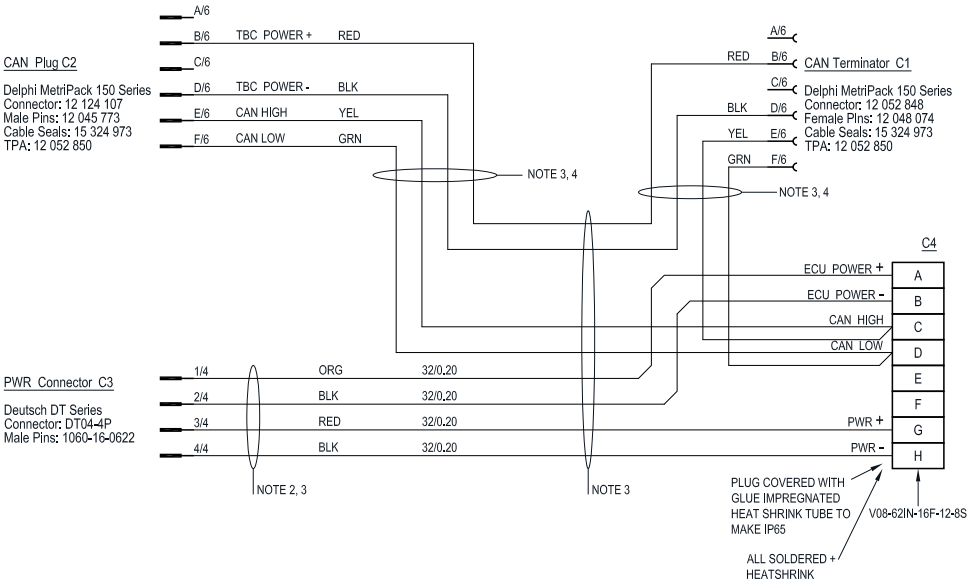
Item	Part Numbers	Gazeeka Stocked Item	Description
1	485-M25-R02	No	Housing - Enclosure & Lid
2	D1444-1B0	Yes	485 - Flow Control Module (2 x Digital Output)
3	TX2400-JZ-3	Yes	Antenna Aerial (Bluetooth)
4	L-G1426	Yes	Pressure Gauge Isometric 63mm - 1-4in Bottom Entry
5	PSE560-02-28	Yes	PSE560 Remote Analog Pressure Sensor
6	23120A=1/2-PP	Yes	Pressure Relief Valve 150PSI SS/VITON
7	A454232	No	Ballvalve Poly 1/2" Three Way
8	AAB122ML-12-P50	No	Filter 122mL Poly
9	485-E09-R00	Yes	Cable - Pump to Controller Wiring Harness
10	SHU8000-547-1789	No	Pump 12V 1-7PSI 6.8L SANTO-VITON
11	485-M34-R04	No	Mounting Frame for the complete kit

Antenna System Wiring Diagram – 870-E101-R03

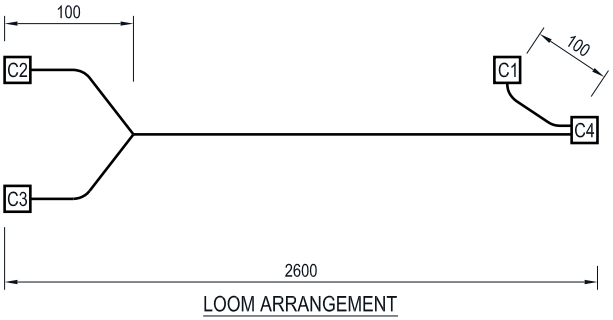



Rx ANTENNA (Passive)
RED
BLU
BLK
GRN
m
SPRAY CAN ACTUATOR
870-E69-R00
RED
RED
BLK
BLK
M20 BLANKING PLUG
GAZELKA
Calibration Check Module
Connect to Antenna ONLY during Testing
(Refer to Manual)

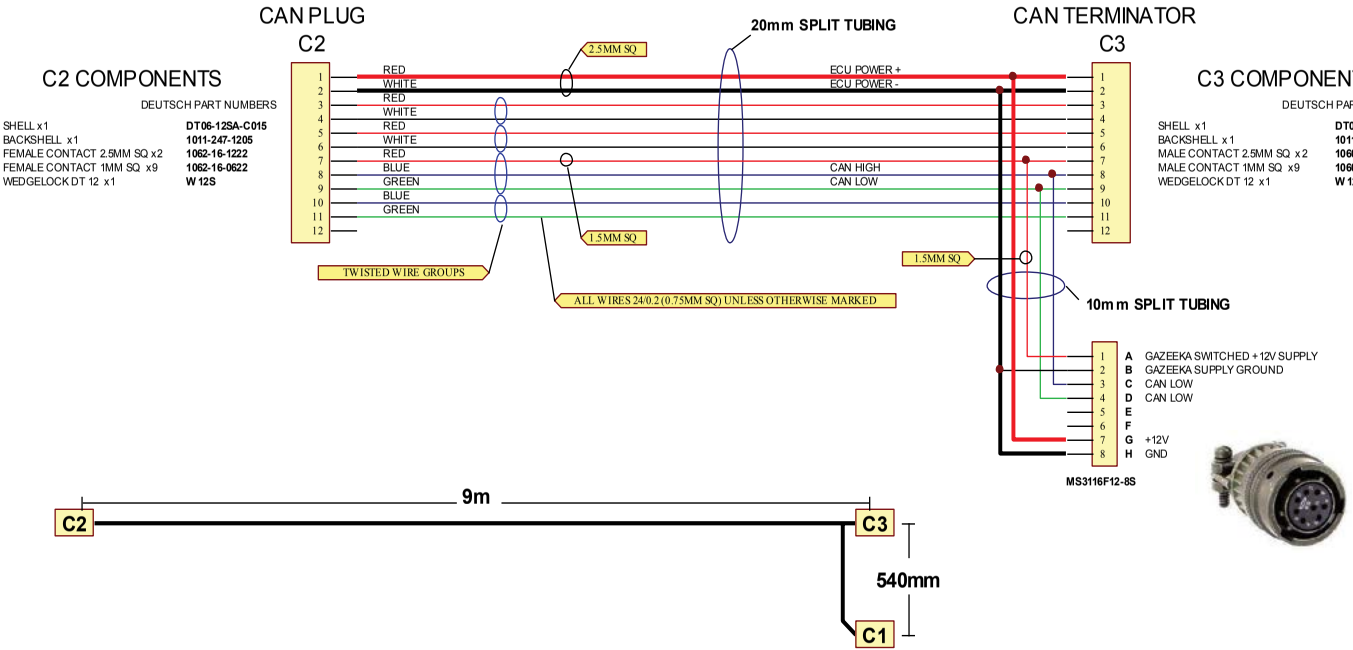
AGCO ISObus Loom (870 to 3rd Party ISObus port) - 870-E53-R02



NOTES:
1) ALL WIRES TO BE 24/0.20
   UNLESS SHOWN OTHERWISE
2) POWER PAIRS TO BE TWISTED
3) LOOMS IN HELAGAINE BRAIDED
   SLEAVING GREY BLACK (P.N. 106091)
4) QUAD CABLE TO ISO11783-2 TABLE 7
5) CABLE MARKERS TO LABEL C1, C2 & C3



LOOM ARRANGEMENT



Krone HDP I (pre Gen5) & HDP II ISObus loom (870 to baler ECU) - 870-E62-R06

1.2 CABLE DIAGRAMS

1.2 CABLE DIAGRAMS

C2 COMPONENTS

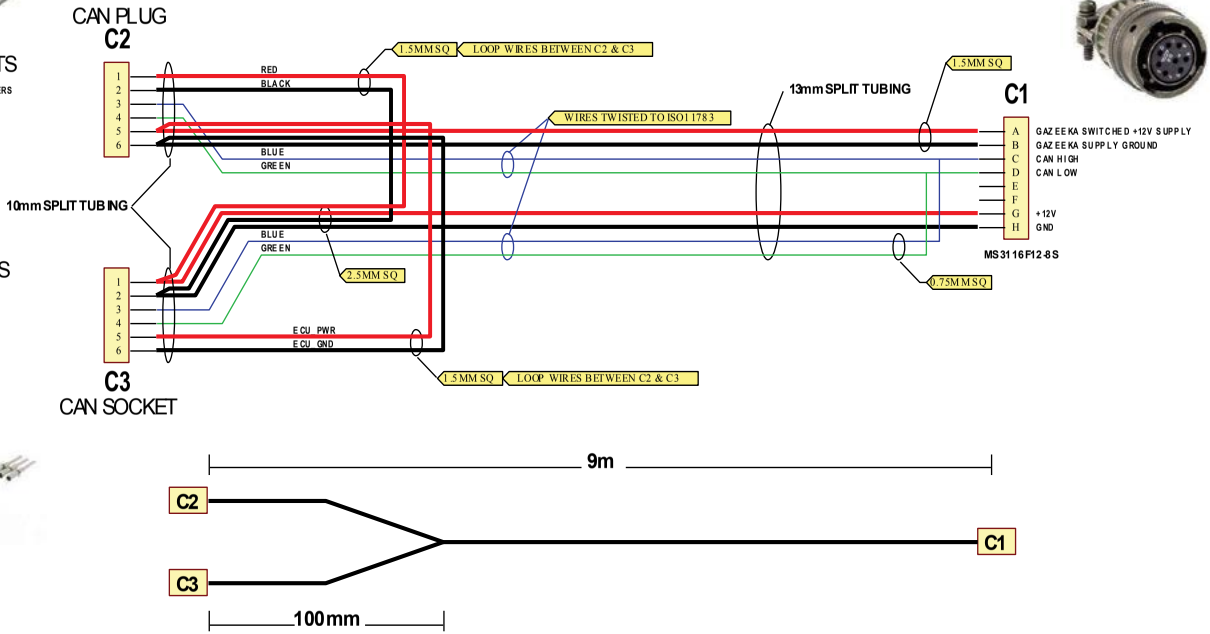
DEUTSCH PART NUMBERS

DT06-6S-C015
1011-239-0605
1062-16-0622 (x2)
1062-16-1222 (x4)
W6-S

C3 COMPONENTS

DEUTSCH PART NUMBERS

DT04-6P
1011-241-0605
1060-16-0622 (x2)
1060-16-1222 (x4)
W6-P

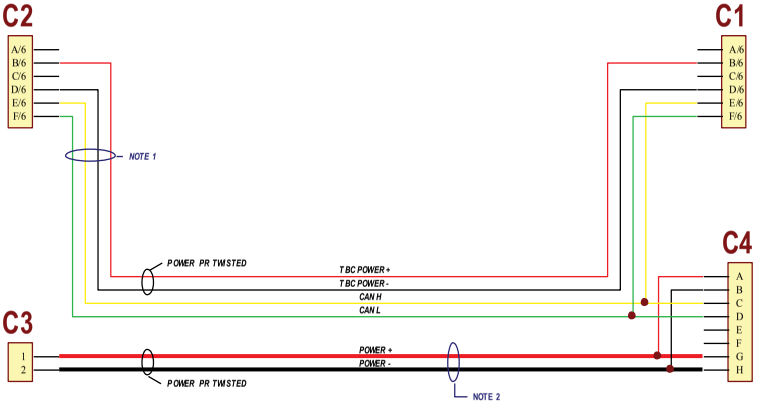


CAN Plug C2

Delphi MetriPack 150 Series
Connector: 12 124 107
Male Pins: 12 045 773
Cable Seals: 15 324 973
TPA: 12 052 850

CAN Terminator C1

Delphi MetriPack 150 Series
Connector: 12 052 848
Female Pins: 12 048 074
Cable Seals: 15 324 973
TPA: 12 052 850

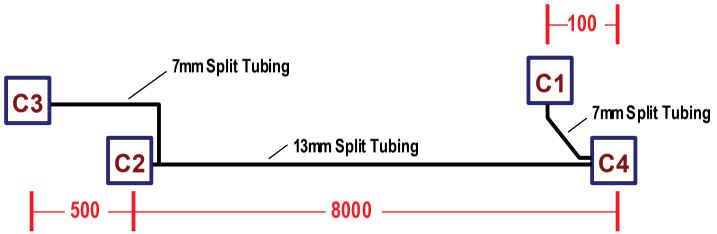


PWR Connector C3

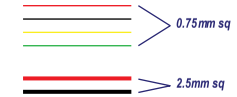
NARVA 82108BL

GAZEEKA MS Connector

MS3116F12-8S
FEMALE



WIRE DETAILS



NOTES:
1) QUAD CABLE TO ISO11783-2 TABLE 7
2) POWER PAIRS TO BE TWISTED

1.2 CABLE DIAGRAMS

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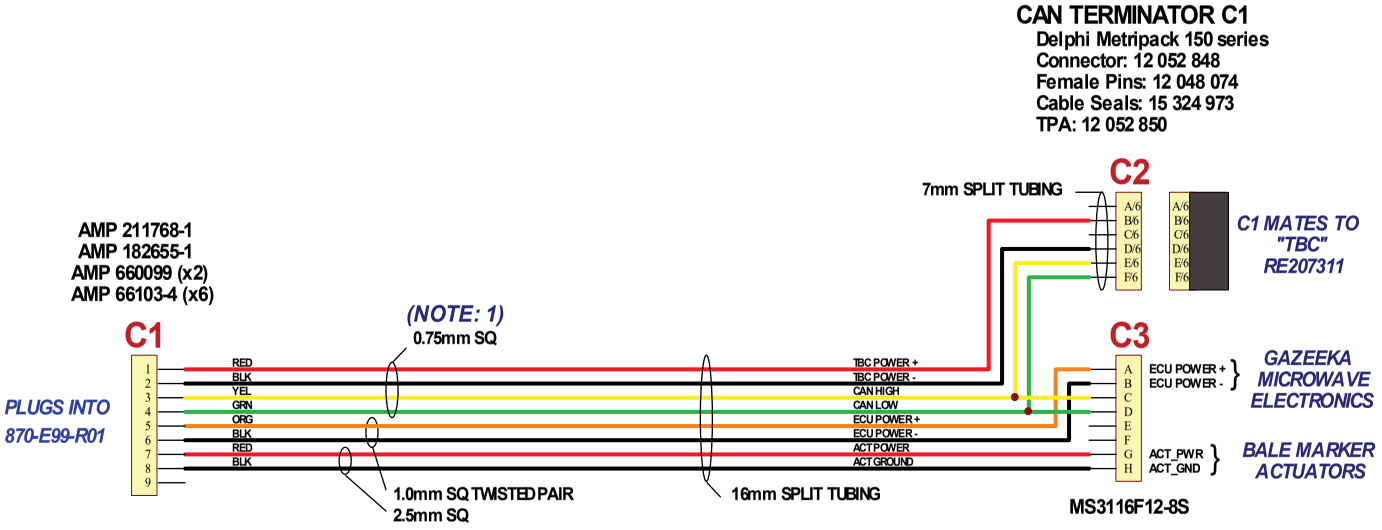
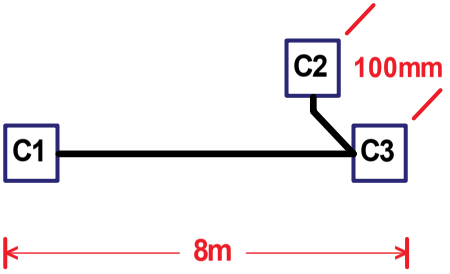
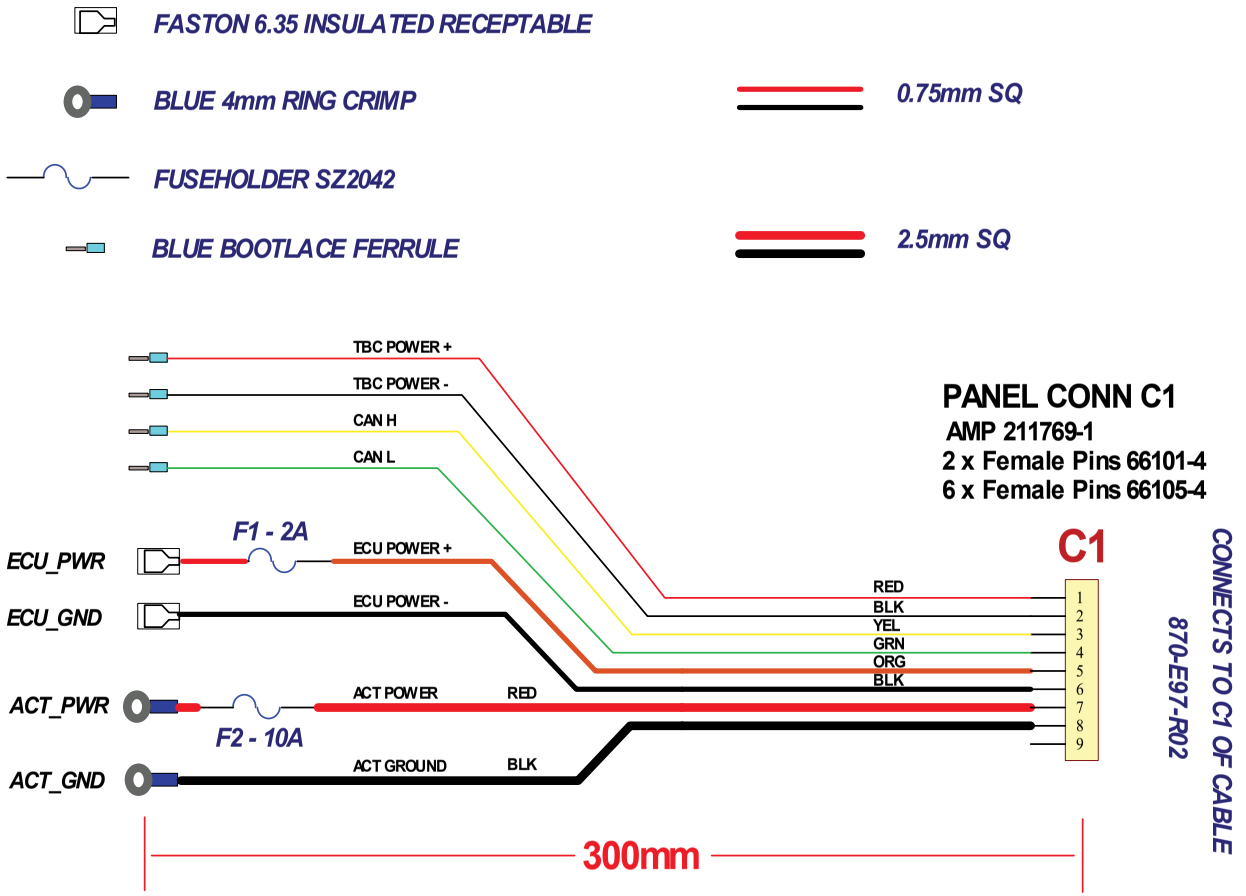


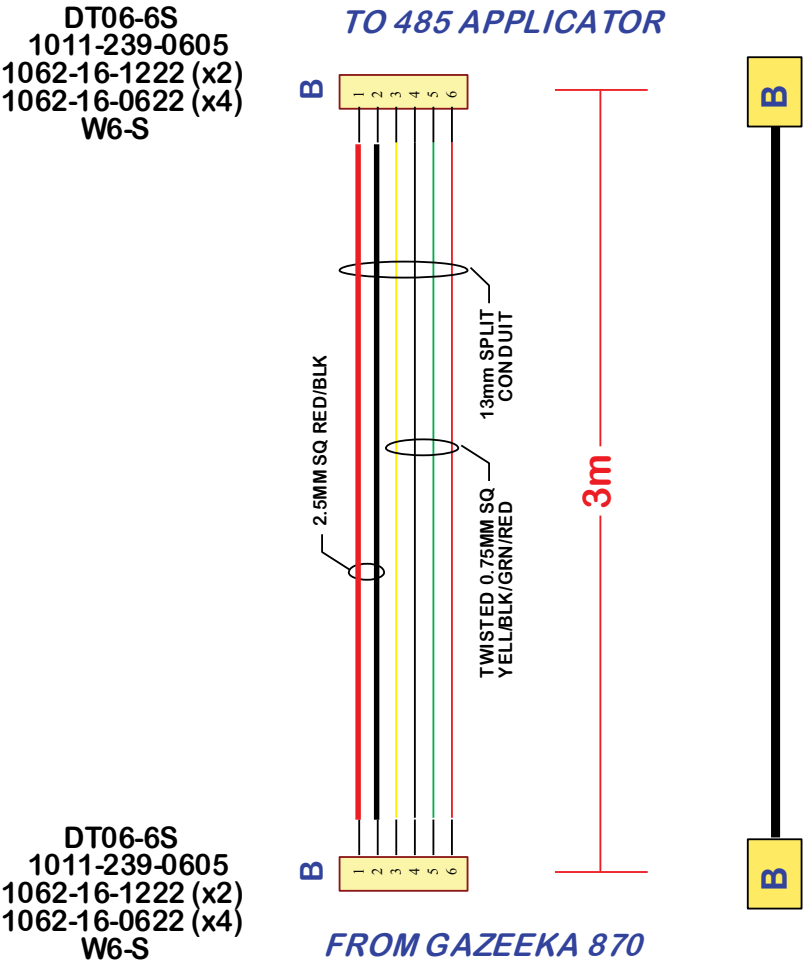


NOTE: 1 TWISTED QUAD CABLE TO ISO11783-2 TABLE 7

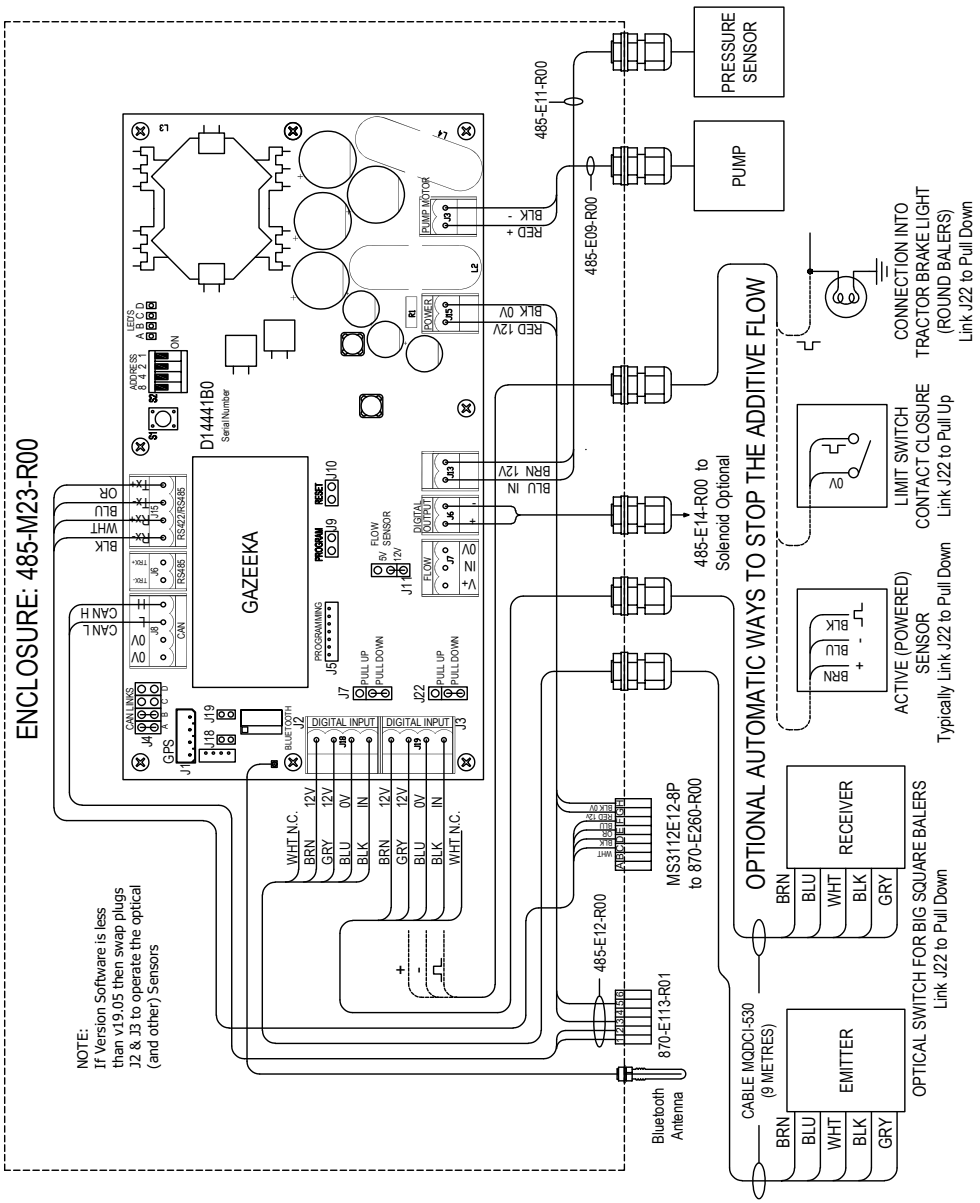


1.2 CABLE DIAGRAMS

870 to 485 Applicator G-Link Cable – 870-E113-R01



Applicator Wiring Diagram – 485-M23-R00



1.2 WIRING DIAGRAMS

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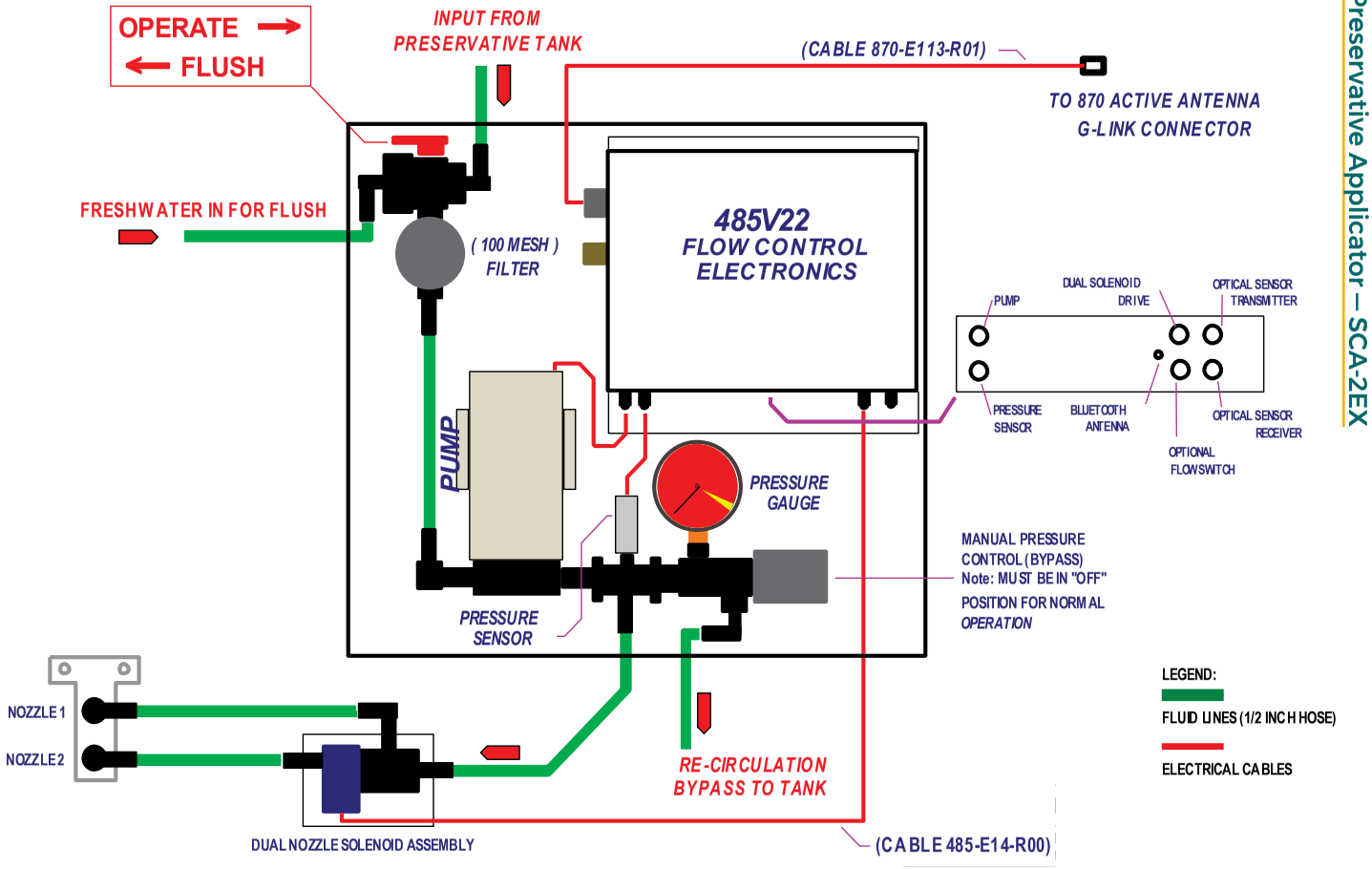


MF Universal Installation Guide

This guide can also be followed for NH BB 960/980/9080/8585 and various other early model balers.

vomax.com.au/documentation/model-870-mf-universal-installation-guide/

Krone Universal Installation Guide

vomax.com.au/documentation/
model-870-krone-universal-installation-guide/

CNH Universal Installation Guide

vomax.com.au/documentation/
model-870-cnh-universal-installation-guide/

Kuhn LSB 1290 D/ID Installation Guide

vomax.com.au/documentation/
model-870-kuhn-universal-installation-guide/

John Deere L340/L341 Installation Guide

vomax.com.au/documentation/
model-870-john-deere-universal-installation-guide/

Claas 5200/5300 Installation Guide

vomax.com.au/documentation/
model-870-claas-5200-5300-installation-guide/

You will need to login prior to scanning QR codes to view documents. If login appears to fail, ensure private browsing mode is disabled.

USERNAME: technician
PASSWORD: gazeeka

JOHN DEERE
GAZEEKA 870i
Bale Moisture
0.0
NOW
0.0
AVE
0.0
MAX
No Bale
Universal
$ 30.0
Spray
11:48am

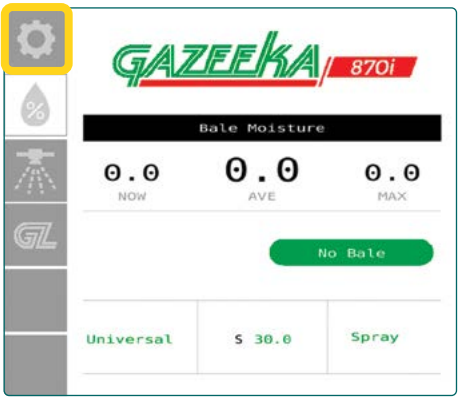
3.1 Setting Up Your Moisture Meter

This section assumes that your instrument has been installed correctly, as per the installation guide provided and section 2 of the Owner's Manual.

On power up, the Gazeeka object pool will load into the Universal Terminal (UT). Note, if a Gazeeka has been used on the UT before, the old "Gaz" object pool must be deleted. Once the implement has loaded, the Gazeeka screen should populate or press the "**G**" Gazeeka icon to bring it up. If a 485 applicator has been connected via G-Link, the additional applicator (spray) and "**GL**" icon will appear and that function loaded as well.

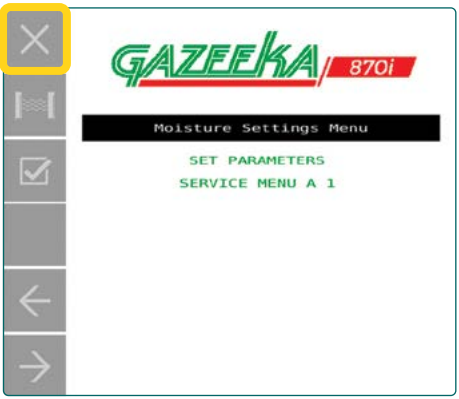
Analyse Mode

For measuring bale moisture



Setup Mode

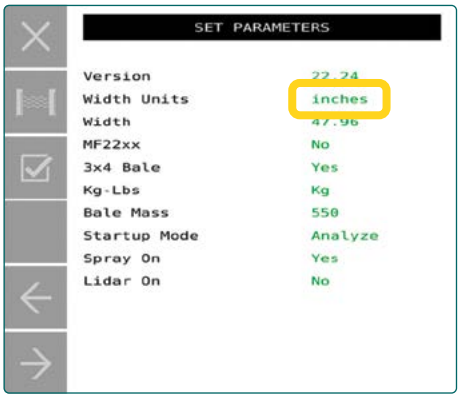
For changing instrument parameters



To enter **Setup Mode** from the Bale Moisture screen, press the settings button (gear icon). To exit **Setup Mode** and return to **Analyse Mode**, press the exit button ("X" icon).

Editing Instrument Parameters

First step when setting up your instrument is navigating to the "**Set Parameters**" menu, this is where the key system settings reside. Enter **Setup Mode**, then select "**Set Parameters**" from the list under the Moisture Settings Menu.



To change the parameter, press on the green text/number associated with the menu item and edit accordingly.

It is important that all these parameters are setup as per your particular application.

Starting at the top, **Version** is the only non-editable parameter in the list and is read from the code that is loaded in the unit's control module.

Width Units:

Units for the Bale width setting.

Width:

Width of bales being made.

MF22xx:

Is this a Massey Ferguson 2200 series baler?

3x4 Bale:

Are you making 3x4 hay bales?

Kg-Lbs:

Units for the Bale Mass setting.

Bale Mass:

The approximate average mass (weight) of the hay bale being made.

Startup Mode:

This should always be left on analyse to automatically read the bale moisture (only change this to **Setup Mode** if you want to disable the moisture readings, i.e., if doing silage)

Spray On:

Turns the marking system on and off.

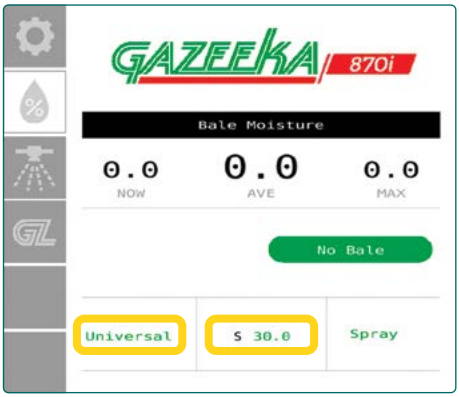
Lidar On:

This should only be changed to "Yes" if the addition of a Lidar (bale drop) sensor has been fitted and wired in.

Tip: set your spray level (**S**) to 00.0 to turn the marking and alarm system off. If you just want to turn the markers off, but keep the alarm on, change the **Spray On** parameter to off in the **Set Parameters** menu.

Spray Level and Crop Type

Once your settings are entered correctly, return to **Analyse Mode** and edit spray level and crop type. To return to **Analyse Mode**, press the exit button ("X" icon) to return to the Moisture Settings Menu and then again to enter **Analyse Mode**.



Spray Level

Spray Level (**S**) is the moisture value at which you wish to mark the bale. Press the **S** tile and then enter the desired percentage moisture you wish to activate the marking system.

Crop Type/Calibration Equations

You'll also need to select the right crop type to set the appropriate **Calibration Equation**. To do this press the crop tile ("**Universal**" in this example) and change it to the most relevant option.

The **Universal** calibration equation can be used at any time, but using the appropriate calibration equation for the type of hay you are baling will give the best results.

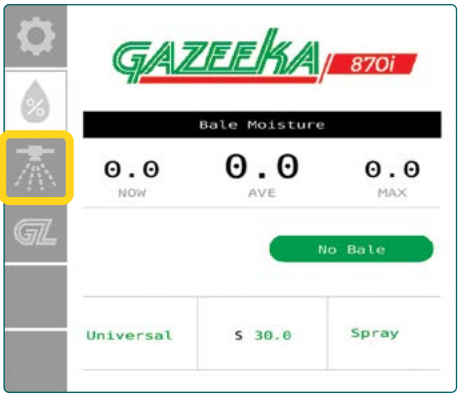
Universal	Suits all crop varieties
Fescue Hay	Grass hay
Cereal Hay	Oats, wheat, barley etc.
Legume Hay	Lucerne (alfalfa), vetch etc.
Oat Mix	Oats and legume

TIP: if you wish to check that your marking system is operating correctly, you can press the "**Spray**" button and have a second person confirm at the back of the baler that the actuators plunge and the paint correctly marks the bale.

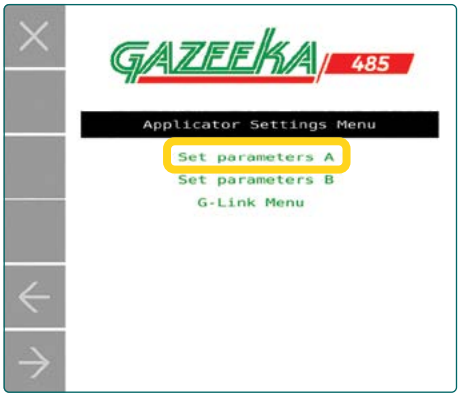
Your Gazeeka moisture meter is now ready for air calibration, if you are not using an applicator via the G-Link, skip to **section 4** for air calibration instructions – otherwise continue on.

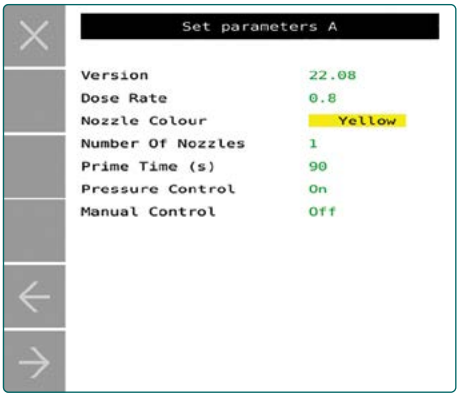
3.2 Setting Up Your Liquid Applicator (G-Link)

The first step in setting up your applicator is navigating to the **Set Parameters** and **G-Link** Settings menus and editing these parameters to suit your application.



To find this menu, click the applicator page (spray icon) and then the settings page (gear icon) and you will enter the **Applicator Settings Menu**.





You can then press **Set Parameters A** on the screen and bring up the standard editable applicator parameters.

To change the parameter, press on the green text/number associated with the menu item and edit accordingly.

It is important that all these parameters are setup as per your particular application. Note, the parameter explanation below is not exhaustive and only shows the key quick start items. Consult parameter listing at the end of this guide and your 485 manual for full list and explanations.

Set Parameters A

Version

Is the only non-editable parameter in the list and is read from the code that is loaded in the units control module.

Dose Rate and SG

Dose Rate and SG (specific gravity) are specific to the preservative being used and should be advised by the chemical manufacturer.

Nozzle Colour

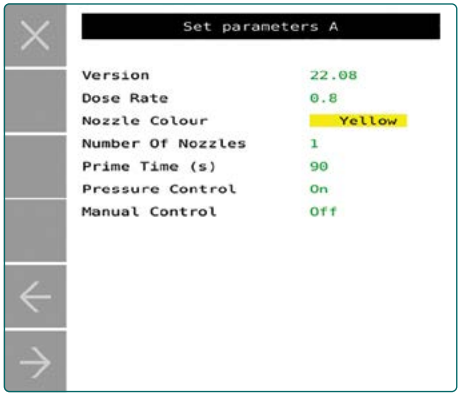
The system will tell you what colour nozzle to select when in **Control Mode**.

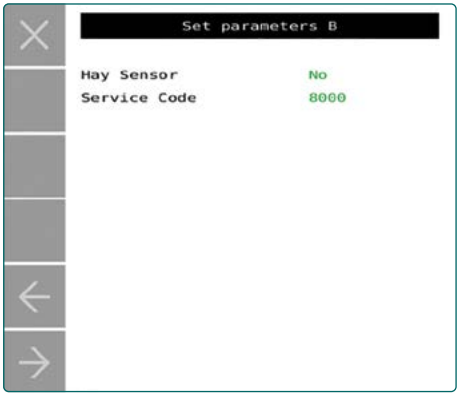
Number of Nozzles

Enter the number of nozzles being used. When using a solenoid nozzle in conjunction with a standard nozzle, you must still select only 1 nozzle, as this parameter only applies to the number of standard nozzles being used (no reference to solenoid nozzles).

Prime Time (s)

This should be left at 90 seconds. Priming can always be skipped in **Control Mode** if priming is not required.





Set Parameters B

Hay Sensor

If using an optical sensor at the baler pickup, you will need to turn **Hay Sensor** to **High**. The optical sensor kit is a highly recommended add-on for the G-Link system. This option stops the flow of preservative if there is no hay present at the pickup.

G-Link Settings

Bale Hold

This parameter determines the number of 'no bale' (or 'bale end') signals after the moisture read by the Gazeeka drops below '**Moist Level**' - before the system turns pump off. This also applies to duration of '**Jump Start**'.

What this function allows for is consistent application of product per bale during the systems decision-making process to turn the pump off due to the moisture going below '**Moist Level**'. This means that the incomplete bale still being made in the chamber will have preservative applied uniformly and the moisture of that bale considered before the system decides to turn the pump off.

Moisture Level

Percentage moisture level read by the Gazeeka at which point the applicator pump is turned on. For example, if 'Moist Level' (M) is set to 14%, once the average moisture (A) readout from the Gazeeka is above 14% the pump for the applicator will be turned on.

TIP: set **Mset-pt 1%** lower than the point at which you want it to turn on, this acts to counter the approximate 1.5 bale lag between where moisture is read and position of the nozzle at the pickup.

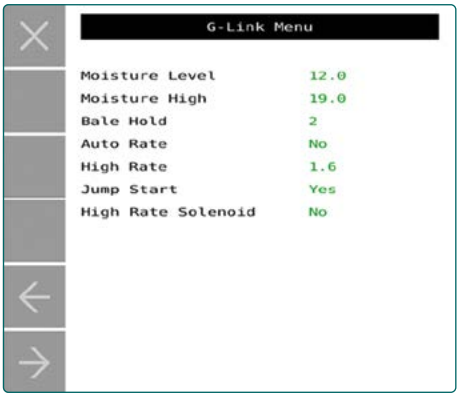
Pressure Control/Manual Control

Pressure control should always be "on" and **Manual Control** "off", unless the pressure sensor has failed. If this is the case, Manual Control needs to be turned "on" to override the system. This will automatically turn pressure control "off". The system should automatically go into manual mode if the pressure sensor fails.

Jump Start

Automatically applies more preservative (see **High Rate**) at the start of a baling session. A green "**Jump Start**" status will appear when Jump Start is active (you'll also notice the increase in the flow rate).

This is best utilised when using a standard nozzle in conjunction with a solenoid nozzle, allowing the system to apply a double rate without you having to leave the cab to swap to a different nozzle size.



Auto Rate

Sets a step approach to increasing the **Dose Rate**, based on the **High Rate** and **Moisture High** settings. If **Auto Rate** is changed to yes and the percentage moisture reaches **Moisture High**, then the **Dose Rate** will jump to **High Rate**. If you are using a second solenoid nozzle, this will automatically turn on if the **High Rate Solenoid** parameter is "yes". A green "**High Rate**" status will appear when the High Rate is being applied (you'll also notice the increase in the flow rate).

High Rate Solenoid

Select yes if a secondary solenoid nozzle has been fitted and wired in (recommended option).

Other Settings

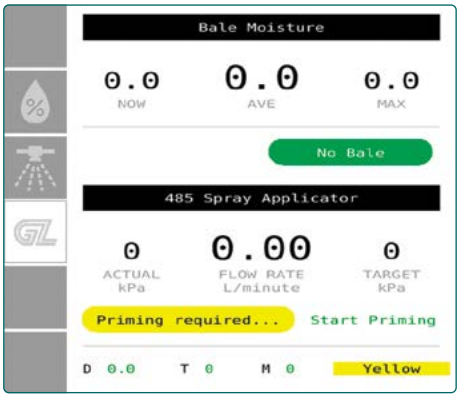
All missed/remaining parameters can be left as default for normal operation; however, it is best to consult your 485 Owner's Manual to better understand these additional parameters.

On the G-Link page ("**GL**") you can view the operation of both the moisture meter and applicator on the single page. Highlighted at the bottom of the page are 4 editable parameters that can be changed on-the-fly.

Dose Rate (**D**), Tons per Hour (**T**), Moisture Level (**M**) and Nozzle Colour.

Tons per Hour can be manually entered in from the baler read-out or approximated via the table at the end of this guide.

If the dose rate and/or tons per hour are edited and the nozzle colour field starts flashing, you must get out and change the nozzle. Once changed, press the flashing nozzle colour and select the nozzle colour that has been put in place.



Tip: add on a high-rate solenoid nozzle kit, which allows the dose rate to be automatically doubled without having to stop and change nozzles.

4. Air Calibration

Doing an air calibration is one of the most important steps when setting your Gazeeka moisture gauge up for baling. This not only sets the reference point for the moisture readings, but it is also a good system check to ensure your unit is operating correctly. An air calibration must be carried out at the time of installation and should also be carried out if there are any physical changes to the installation such as changing balers, microwave cable, microwave board etc.

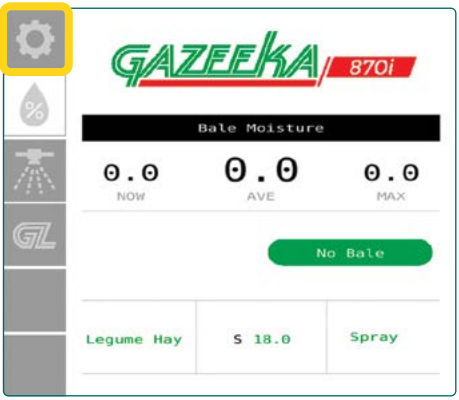
It is recommended that you do an air calibration at the start of each season.

Before you start:

- Make sure instrument has been on for at least 2 minutes.
- Make sure the air path between the antennae is clear (i.e., no bale, chains, tailgate or anything else obstructing the microwave path).
- **Ideally, the bale chamber should be completely empty of hay or at the very least the end of the bale should be inside the rear end of the baler doors by at least 300mm/1' – No bale within 600mm/2' of the beam.**

Calibration Procedure:

1: From the Bale Moisture screen, press the **COG** key to enter the Moisture Settings Menu.

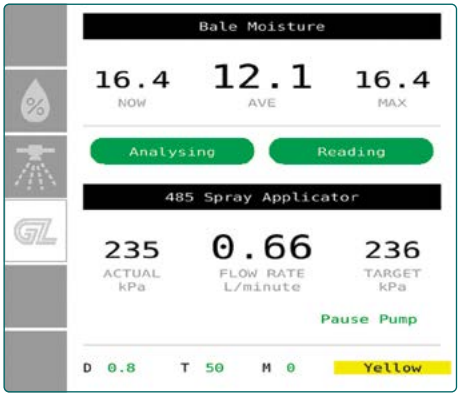


2: Press **AIR** key to prepare Air Calibration sequence and then press it again to start.

3: Once status shows "Air reading complete" press **X** key to return to moisture analysis mode.

Your Gazeeka 870 moisture meter and 485 applicator (G-Link only) are now setup and ready to assist in making some great hay.

Remember to consult both manuals before operating your instruments, as the quick start guide only covers the basics of operation and system setup.



G-Link screen showing Bale Moisture and Applicator Status in tandem.

Nozzle colours for typical flow rate ranges

Imperial – per nozzle in Gallons per Hour

Nozzle	Orange	Green	Yellow	Blue	Red	Brown	Grey	White
15 PSI	3.60	5.40	7.20	10.80	14.40	18.60	22.20	29.40
40 PSI	6.00	9.00	12.00	15.00	24.00	30.00	30.00	48.00

Production Rate

Tons Per Hour (TPH) from average bale weight and time to make each bale

Seconds per Bale	Weight per Bale in pounds							
	800	1000	1200	1400	1600	1800	2000	2200
30	48	60	72	84	96	108	120	132
45	32	40	48	56	64	72	80	88
60	24	30	36	42	48	54	60	66
75	19	24	29	34	38	43	48	53
90	16	20	24	28	32	36	40	44
105	14	17	21	24	27	31	34	38
120	12	15	18	21	24	27	30	33
135	11	13	16	19	21	24	27	29
150	10	12	14	17	19	22	24	26
	Tons Per Hour							

1 Nozzle

2 lbs / ton	
TPH	GPH
20	3.6
40	7.2
60	10.7
80	14.3
100	17.9
120	21.5
Use 1x110° nozzle	

2 Nozzles

2 lbs / ton		Per Nozzle
TPH	GPH	
20	3.6	-
40	7.2	3.6
60	10.7	5.4
80	14.3	7.2
100	17.9	9.0
120	21.5	10.8
Use 2x110° nozzles		

3 Nozzles

2 lbs / ton		Per Nozzle
TPH	GPH	
20	4.5	-
40	9.0	4.5
60	13.4	6.7
80	17.9	8.9
100	22.4	11.2
120	26.9	13.4
Use 2x110° nozzles		

Nozzle colours for typical flow rate ranges

Metric – per nozzle in Litres per Minute

Nozzle	Orange	Green	Yellow	Blue	Red	Brown	Grey	White
1bar	0.23	0.34	0.46	0.68	0.91	1.1	1.4	1.8
2.5bar	0.36	0.54	0.72	1.1	1.4	1.8	2.2	2.9

Production Rate

Tonnes Per Hour (TPH) from average bale weight and time to make each bale

Seconds per Bale	Weight per Bale in kilograms							
	300	400	500	600	700	800	900	1000
30	36	48	60	72	84	96	108	120
40	27	36	45	54	63	72	81	90
50	22	29	36	43	50	58	65	72
60	18	24	30	36	42	48	54	60
70	15	21	26	31	36	41	46	51
80	14	18	23	27	32	36	41	45
	Tonnes Per Hour							

1 Nozzle

0.8 litres / tonne	
TPH	L / Min
20	0.3
40	0.5
60	0.8
80	1.1
100	1.3
120	1.6
Use 1x110° nozzle	

2 Nozzles

0.8 litres / tonne		Per Nozzle
TPH	L / Min	
20	0.3	0.13
40	0.5	0.27
60	0.8	0.40
80	1.1	0.53
100	1.3	0.67
120	1.6	0.80
Use 2x110° nozzles		

3 Nozzles

1 litre / tonne		Per Nozzle
TPH	L / Min	
20	0.3	0.17
40	0.7	0.33
60	1.0	0.50
80	1.3	0.67
100	1.7	0.83
120	2.0	1.00
Use 2x110° nozzles		

Set Parameters	
Item	**Explanation**
Version	Current software version
Width Units	Units for the bale width (in = inches for USA) / (m = metric)
Width (in)	Width of the bale (typically) 3-foot bale = 32 inches (metric 0.800) 4-foot bale = 48 inches (metric 1.200)
MF22xx	Selects the correct “NAME” for the moisture value (AGCO balers only)
3x4 Bale	Are you baling a 3x4 hay bale?
Kg-Lbs	Choose the units for the Bale Mass entry
Bale Mass	The approximate mass (weight) of the hay bale being made. 50kg/100lbs steps – limited range.
Spray On	No, prevents the marking system from operating if the moisture goes over the high moisture set point (but still ‘beeps’). “UP” to mark still works
Lidar	Bale drop Lidar present?

Setup Menu	
Item	**Explanation**
F1 = Control	Enters the Control Mode
Version	Current software version
Set Parameters A	
Item	**Explanation**
Dose Rate	Sets the dose rate in litres per ton (or in US units = pounds per ton)
Nozzle Qty	Selects number of nozzles being used (does not include solenoid nozzles being used)
Pressure Control	This sets the system to Pressure Control Mode. If the pressure sensor fails, the system will automatically go into Manual Control Mode. Press ENT to accept this mode change
Manual Control	This sets the system to Manual Control Mode where the UP and DOWN keys can be used to change pump speed (%)
Hay Sensor	Select high if you are using an optical sensor to automatically stop the flow of preservative when there is no hay present at the pickup
G-Link Settings	
Moist Level	Moisture percentage level (units only) above which the applicator will turn on (if hay is present)
Moist High	Moisture percentage level (units only) above which the applicator will apply 'High Rate'
Bale Hold	Number of 'no bale' signals after the moisture read by the Gazeeka drops below 'Moist Level' - before the system turns pump off. Also applies to duration of 'Jump Start'.
Auto Rate	Applies 'High Rate' when moisture is above 'Moist High'
High Rate	Sets the high application rate (L/min or lbs/ton)
Jump Start	Applies 'High Rate' to begin baling session (before moisture read) for "Bale Hold' duration.
Solenoid	Select 'Yes' if a secondary solenoid nozzle has been fitted and wired in

Contact info

Still need help? Feel free to get in touch during local business hours:

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