Freeman 280/285/380/385 IQAN Controls

The following pages detail how to use 280/285/380/385 IQAN controls. Read entire manual before operating baler. Consult operators manual PB00000102 for more information, including SAFETY.

SAFETY

Allied Systems Co. is concerned with safety. Freeman Equipment is furnished with safety features. Even with these safety features, personal injury can still occur if the operator is careless when operating or maintaining the machine. There are “CAUTION,” “DANGER,” and “BE CAREFUL” decals on the machine. Read and pay attention to the decals. Following is a list of precautions that should be taken to help prevent personal injury:

1. KEEP ALL SHIELDS IN PLACE.
2. SHUT OFF TRACTOR ENGINE BEFORE ADJUSTING, LUBRICATING, CLEANING OR SERVICING THE BALER.
3. WAIT FOR ALL MOVEMENT TO STOP BEFORE SERVICING BALER.
4. KEEP HANDS, FEET, AND CLOTHING AWAY FROM POWER DRIVEN PARTS.
5. KEEP ALL SHIELDS INSTALLED AND KEEP CLEAR OF THE P.T.O. DRIVE LINE.
6. KEEP ALL OTHERS OFF BALER.
7. USE APPROPRIATE SIGNS OR WARNING LIGHTS WHEN OPERATING ON HIGHWAYS.
8. MAKE CERTAIN EVERYONE IS CLEAR OF BALER BEFORE ENGAGING P.T.O.
9. DO NOT RIDE ON ANY PART OF THE BALER WHILE IN OPERATION.
10. KEEP HANDS AND FEET CLEAR OF PICKUP.
11. KEEP HANDS AWAY FROM KNOTTER WHEN BALER P.T.O. DRIVE IS ENGAGED.
12. PERIODICALLY CHECK ALL NUTS AND BOLTS FOR TIGHTNESS.
13. ALWAYS USE LIGHTS FOR NIGHT WORK.
14. AS A SAFETY PRECAUTION IT IS RECOMMENDED THAT AN “ABC” FIRE EXTINGUISHER BE CARRIED ON THE BALER AT ALL TIMES. IT IS ALSO RECOMMENDED TO CARRY A FOUR GALLON WATER CONTAINER WITH PUMP, OR AS REQUIRED BY LOCAL AND STATE LAW.
15. AVOID LOOSE CLOTHING WHICH CAN EASILY BE CAUGHT IN MOVING PARTS.
16. REMEMBER ‘SAFETY’ IS ONLY A WORD UNTIL IT IS PUT INTO PRACTICE.

WARNING: SOME ILLUSTRATIONS IN THIS PARTS LIST SHOW THE BALER WITHOUT SHIELDS TO ALLOW FOR A BETTER VIEW OF THE AREA BEING ADDRESSED. THE BALER SHOULD NEVER BE OPERATED WITH ANY OF THE SAFETY SHIELDS REMOVED.

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BALE SCREEN

⚠	CAUTION: MAKE CERTAIN EVERYONE IS CLEAR OF THE BALER BEFORE ENGAGING PTO OR OPERATING BALER.

The IQAN system will turn on with the baler key switch. When turned on, the MD3 screen will quickly display a start-up screen and then continue to the last menu screen displayed when the unit was shut down. The main bale screen may always be reached by pressing the BACK ARROW button (←).

F1 1. WINDROW Press F1 to start and stop the windrow. If it reads "Start", pressing F1 will lower the pickup and raise engine RPM for a preset amount of time. If it reads "End", pressing F1 will end the windrow by raising the pickup and lowering the engine rpm. The Engine RPM and Pickup timer can be adjusted in the Windrow screen (see page 7). Pressing F2 (Pickup) or F3 (Throttle) will override F1 (Windrow) functions.

F2 2. PICKUP Press F2 to activate control of the Pickup. Use the UP/DOWN buttons to raise and lower the pickup (Accessed only in BALE SCREEN). Press and hold F2 to turn on and off Work Lights.

F3 3. THROTTLE Press F3 to activate control of the Throttle. Use the UP/DOWN buttons to raise and lower the Throttle (Accessed only in BALE SCREEN). Press and hold F3 to switch between Bale/Re-Bale.

F4 4. DRAWBAR Press to activate control of the Drawbar. Use the UP/DOWN buttons to move the Drawbar right UP button and left DOWN button (Accessed only in BALE SCREEN).

← 5. BACK ARROW button Press the back arrow button to prompt the Bale Shape screen for quick access to tension adjustments. Press the back arrow button again to return to the Bale screen (see Page 3 for Bale Shape adjustments).

BALE SCREEN

6. MENU button Press to prompt Main screen. The main screen displays: Adjust, Measure, Preferences and Info.

7. PICKUP Indicator Light Pickup is active and can be adjusted when Pickup Indicator light is illuminated.

8. THROTTLE Indicator Light Throttle is active and can be adjusted when Throttle Indicator light is illuminated.

9. DRAWBAR Indicator Light Drawbar is active and can be adjusted when Drawbar Indicator light is illuminated.

10. UP/DOWN Button For navigating and adjusting settings.

11. SCREENS MENU Press OK button to access the Screens Menu. The Screens Menu can be used to navigate to Bale screen, Windrow screen, Field screen and Bale Shape Screen (see below). Use the UP/DOWN arrows for navigation and press OK to select the screen.

12. RPM Strokes Per Minute

13. BALE COUNT Bale count of the current field. The bale count can be reset in the Field screen (See Page 8).

14. STROKES/BALE Displays the strokes of the last bale made.

15. SNAIL/RABBIT See FLAKE VARIANCE BAR.

16. FLAKE VARIANCE BAR The the upper part of the indicator will display green and a Rabbit will illuminate when there are too many flakes per bale and ground speed should be increased. The lower part of the indicator will display red and a Snail will illuminate when there are not enough flakes and ground speed should be decreased (see Flake Goal Window on page 13).

17. CLOCK The time can be adjusted by navigating to the Preferences screen. Press the MENU button, F3 for the Main screen, F3 for Preferences, F2 for Date/Time and F2 for Time. Use the UP/DOWN arrows for adjusting and OK button when done.

18. PROPORTIONAL FLAKE COUNT This bar indicator will fill as Flake Goal is being achieved. For optimum bale weight and shape, the baler should make a bale with 14 to 16 strokes per bale (see page 3 for adjusting Flake Goal).

19. WORK LIGHTS The indicator will illuminate when Work Lights are on.

20. FUEL LEVEL This bar will display fuel level. See page 10 for Fuel Gauge Calibration. Fuel level indicator will turn RED when fuel level is low.

21. FIELD Displays current field. Fields can be renamed in the Field Screen (see page 6). Also will flash “Low RPM” if below adjustable baling parameter of 70 RPM (See Page 6 for adjusting baling parameter).

22. TENSION 100% is full pressure. The tension can be adjusted in the Bale Shape screen (see page 3 and 4).

23. BALE/RE-BALE Press and hold F3 to switch between Bale/Re-bale (see Windrow Screen on page 7 for adjusting timers).

Bale is normal baling operation. Press F1 to toggle between Start/End Windrow operation (see Windrow on Page 1).

Re-Bale is for re-baling broken bales. Pressing F1 in the Re-Bale/Start/Windrow mode will increase engine RPM half way and lower the Pickup.

BALE SHAPE SCREEN

Navigation from Bale screen (see page 1): Press Back Arrow button.

F1 1. TENSION Press F1 to access Tension adjustment. Use the UP/DOWN buttons to adjust and press OK button to set and save. Or use the UP/DOWN buttons to access and adjust the Tension, press OK button to set and save.

When the cylinder pressure is increased, it increases the amount of force the tension rails apply to the bales. This increase in force raises the friction between the bale material and the tension rails, which requires more compacting force to move the bale through the chamber. The increase in compacting force increases the density of the bale by putting more material into the same volume. The typical system pressure ranges from 0 psi to 2100 psi for the density setting.

The type of material, moisture content and other factors will often change how the density setting affects the amount of compacting force required to press the bale through the chamber. Drier materials like Straw and some types of grasses may require more pressure than is possible at the highest density setting. If this is the case, chamber restrictor wedges can be installed. These wedges are designed to further compact the material without that the density setting is increased.

However, the installation of wedges may require the Operator to reduce the density setting to maintain the appropriate weight. Please contact your Freeman representative for more information on these and other products.

F2 2. TENSION CAP Press F2 to adjusts the tension cap, which is the max tension pressure. This adjustment is to prevent the pressure from being set above the pump “turn on” pressure which would cause unstable tension pressures. To set the tension cap:

a. Raise engine speed half throttle (see Throttle on page 1).

b. Press F1 button to access Tension and use the UP button to adjust Tension to 100%, press OK button.

BALE SHAPE SCREEN

c. Press F2 to access Tension Cap. While watching the Tension gauge on the front of the baler, press the UP/DOWN buttons to Adjust Tension pressure to 2100 psi and press OK button.

3. FLAKE GOAL Press F3 to adjust the flake goal or desired number of flakes in a bale.

4. FLAKE WINDOW Press F4 to change the flake window, or the number of flakes that the upper or lower bars in the Flake Variance bar represents. The lowest setting window is a variance of 1 flake. Setting Flake Window to 1 is the strictest monitoring setting providing most accurate results. (see Flake Window Chart on page 13).

5. UP/DOWN Button has two functions in the Bale Shape screen.

a. With no other function selected, press either the UP or DOWN button to prompt the Tension Pressure box. Press UP/DOWN button to adjust Tension Pressure and press OK button to set and exit the Tension Pressure box.

b. Press to navigate in the screen menu or to adjust settings.

6. OK Button has two functions in the Bale Shape screen.

a. Press OK button to prompt the screens menu. The screens menu can be used to navigate to Bale screen, Windrow screen, Info screen and Bale Shape Screen (see below). Use the UP/DOWN arrows for navigation and press OK to select the screen.

b. After making an adjustment, press OK button to set and save that adjustment.

7. STROKES/BALE Plunger strokes of the last bale.

8. STROKE Current plunger stroke.

9. TEETH There are 88 teeth per revolution. The count resets each revolution.

10. RPM Strokes Per Minute.

11. FLAKE VARIANCE BAR see page 2.

12. PROPORTIONAL FLAKE COUNT see page 2.

13. TENSION 100% is full pressure.

MAIN SCREEN

Navigation from Bale screen (see page 1): Press Menu button from Bale screen.

F1 1. ADJUST Press F1 button to prompt Adjust screen. The following can be accessed; Hydraulics, Engine, Field Names, Dealer, Bale Shape, Tension System and Screens. Use UP/DOWN buttons to navigate and make adjustments. Each adjustment can be reset and/or adjusted. Press the Back Arrow button to go back to the main screen.

F2 2. MEASURE Press F2 button to prompt Measure screen. Machine Sensors and XA2 Outputs will display. Use UP/DOWN buttons to navigate and press OK to access (see page 11 and 12 for troubleshooting).

F3 3. PREFERENCES Press F3 to prompt Preferences screen. The following can be accessed: Display, Date/Time and Language. Use the monitor buttons to navigate and make adjustments.

F4 4. INFO Pressing F3 while in the Main screen will prompt the Info screen. The following can be accessed: Display, Date/Time and Language. Use the monitor buttons to navigate and make adjustments.

ADJUST SCREEN

Navigation from Bale screen (see page 1): Press Menu button from Bale screen. Press F1 button (Adjust) from Main screen

Use the UP/DOWN buttons to scroll through the options in the ADJUST screen and press OK to access.

1. HYDRAULICS Pickup Up Time and Pickup Down Time can be adjusted or reset.

2. ENGINE The following options will be listed and are adjustable:

Throttle Up Time
Throttle Down Time
Fuel Level High Input (mV)
Fuel Level Low Input (mV)
Fuel Level High Output (%)
Fuel Level Low Output (%)
Lower Fuel Warning
Speed Sensor Teeth/Rev
Low Baling RPM Warning

To reset each option, highlight while in the Engine screen and press F2 button.

Note: Fuel can be adjusted here or in the calibration screen.

3. FIELD NAMES Change current field name.

4. DEALER Change dealer information.

5. BALE SHAPE Flake Goal and Flake Window can be adjusted or reset.

6. TENSION SYSTEM Tension Pressure and Tension Cap can be adjusted or reset.

7. SCREENS Not Adjustable

WINDROW SCREEN

Navigation from Bale screen (see page 1): Press OK button from Bale screen. Use the UP/DOWN buttons to toggle to Windrow and press OK button.

The windrow screen is used to set up the throttle and pickup actuation timers. When the up or down buttons are pressed, a timer will start and run for as long as the button is held down. Each timer will reset when the direction is changed. To set the throttle up time, press OK button until throttle is displayed. Press the down arrow until the engine is at idle (raising it first and then lowering it without interruption will produce the most repeatable settings). Press the up arrow for the minimum time required to reach the desired baling RPM in "bale" mode (when Bale Screen reads "bale" above F1), or re-baling RPM (about half throttle) in "re-bale" mode. Press F1 and enter this "Up time" number into the "throttle up time" and then press OK button to lock in the number. Then press the down arrow until the engine returns to idle. Enter this "down time" number into F2. Repeat this procedure with the pickup function by recording the time it takes to raise and lower the pickup.

F1 1. THROTTLE UP TIME Press F1 to access Throttle Up Time. Use UP/DOWN buttons to adjust and OK button to exit.

F2 2. THROTTLE DOWN TIME Press F2 to access Throttle Down Time. Use UP/DOWN buttons to adjust and OK button to exit.

F3 3. PICKUP UP TIME Press F3 to access Pickup Up Time. Use UP/DOWN buttons to adjust and OK button to exit.

F4 4. PICKUP DOWN TIME Press F4 to access Pickup Down Time. Use UP/DOWN buttons to adjust and OK button to exit.

OK 5. OK Button Press to toggle through Throttle, Drawbar and Pickup.

6. DOWN TIME Temporary reading when making adjustments.

7. UP TIME Temporary reading when making adjustments.

8. BULLGEAR RPM Equals plunger strokes per minute.

FIELD SCREEN

Navigation from Bale screen (see page 1): Press OK button from Bale screen. Use the UP/DOWN buttons to toggle to Field and press OK.

F1 1. WORK LIGHTS Press F1 to turn on and off Work Lights.

F2 2. DEALER Press F2 to display Dealer information and program version. Press F1 while in the Dealer screen to access the dealer set up options where a dealer may be chosen from a list or a custom dealer may be entered. Press F2 while in the Dealer screen to access the Fuel Calibration screen (see Fuel Calibration screen on page 10).

F3 3. ADJUST COUNT Press and hold F3 while pressing UP/DOWN buttons to adjust bale count in current field.

F4 4. RESET COUNT Press and hold F4 to reset current field bale count.

OK 5. OK Button Press OK button to prompt the screens menu. The screens menu can be used to navigate to Bale screen, Windrow screen, Info screen and Bale Shape Screen (see below). Use the UP/DOWN arrows for navigation and press OK to select the screen.

6. LIFE TIME BALE COUNT Not Adjustable

7. LIFE TIME HOUR COUNT Not Adjustable

8. BALING HOUR COUNT Not Adjustable

9. FIELDS Press UP/DOWN buttons to scroll through fields 1 through 10.

DEALER SCREEN

Navigation from Bale screen (see page 1): Press OK button from Bale screen. Press UP/DOWN buttons to toggle to Field and press OK. Press F2 to access Dealer screen.

Access the Dealer screen by pressing OK in the Bale screen, use the UP/DOWN buttons to toggle to Field and press OK. Press F2 to access the Dealer screen.

F1 1. DEALER Press F1 to access the Dealer screen. Use UP/DOWN buttons to select an option and OK button to access. Press F2 to reset the option that is highlighted.

F2 2. FUEL CALIBRATION Press F2 to access Fuel Calibration screen (see page 10).

FUEL CALIBRATION SCREEN

Navigation from Bale screen (see page 1): Press OK button from Bale screen. Press UP/DOWN buttons to toggle to Field and press OK. Press F2 to access Dealer screen. Press F2 while in the Dealer screen to access the Fuel Calibration screen.

The fuel gage calibration should be preset to the proper settings. Should a fuel gauge be inaccurate or an alternate fuel gauge used, it may be calibrated here to read correctly in the gauges. Two points are needed to calibrate the gauge, preferably the lowest and the highest points. Either point may be set at any time. When the tank is empty, set the low point by entering the "Sender (input)" (green) voltage reading into F1 and verifying F2 is at 0% (empty). When the tank is topped off, enter the "sender (input)" (green) voltage into F3 and make sure F4 is at 100% (full). The gauge will read linearly between these two points.

F1 1. LOW INPUT Set when empty. Press F1 to access Low Input. Use UP/DOWN buttons to adjust and OK button to exit.

F2 2. LOW OUTPUT Press F2 to access Low Output percentage. Use UP/DOWN buttons to adjust and OK button to exit.

F3 3. HIGH INPUT Press F3 to access High Input. Use UP/DOWN buttons to adjust and OK button to exit.

F4 4. HIGH OUTPUT Press F4 to access High Output percentage. Use UP/DOWN buttons to adjust and OK button to exit.

5. SENDER INPUT Volts from level detector in fuel tank.

6. GAUGE OUTPUT Percent of fuel level in tank.

TROUBLESHOOTING (Machine Sensors)

Navigation from Bale screen (see page 1): Press Menu button from Bale screen. Press F2 Button (Measure) from Main screen. Press OK button with Machine Sensors highlighted.

Press F2 to toggle between Raw Value and Scaled Value.

Troubleshoot the Machine Sensors by comparing the Machine Sensor readings displayed on the monitor to the list below.

Factory Default Machine Sensor Settings				
	Low	Notes	High	Notes
Fuel Level	162 mv	Full	996 mv	Empty
Bullgear speed	0 RPM	Stopped	84 rpm	Full smoke
Bullgear tooth count	0 Teeth		88 teeth	0-88 teeth is one full bullgear cycle
Knotter cycle	FALSE	Untripped knotter sensor	TRUE	Tripped knotter sensor
MDGN-+BAT:XA2-A1	9 V	Minimum operating voltage	15 V	Over voltage (computer can take up to 30 V)
MDGN-+Temp:XA2-A2	0° C	Freezing temperature	46° C	Average warm XA2 module temp
MDGN-+VREF:XA2-A3	4.99 V		5.01 V	Reference voltage should be right at 5.0 V for sensors
MDGN-+Status:XA2-A4	OK	Good to go	“Not OK”	Problem with XA2 module
MDGN-+BAT:MD3	10 V	Minimum operating voltage	16 V	Over voltage (computer can take up to 30 V)
MDGN-+Temp:MD3	0° C	Freezing temperature	46° C	Average warm MD3 temp
MDGN-+VREF:MD3	4.99 V		5.01 C	Not used on MD3
MDGN-+Status:MD3	OK	Good to go	“Not OK”	Problem with XA2 module

TROUBLESHOOTING (XA2 Outputs)

Navigation from Bale screen (see page 1): Press Menu button from Bale screen. Press F2 Button (Measure) from Main screen. Press OK button with XA2 Outputs highlighted.

Press F2 to toggle between Raw Value and Scaled Value.

Troubleshoot the Machine Sensors by comparing the Machine Sensor readings displayed on the monitor to the list below.

Factory Default XA2 Output Settings				
	Low	Notes	High	Notes
Tension Pressure	162 mv	Full	996 mv	Empty
Bullgear speed	0 RPM	Stopped	84 rpm	Full smoke

FLAKE WINDOW CHART

FLAKE WINDOW CHART

The chart below illustrates what the Flake Variance Bar will display at different ground speeds. Flake Goal: 14 and Flake Window: 3 are used for example only (see page 3 and 4 for setting Flake Goal and Flake Window).

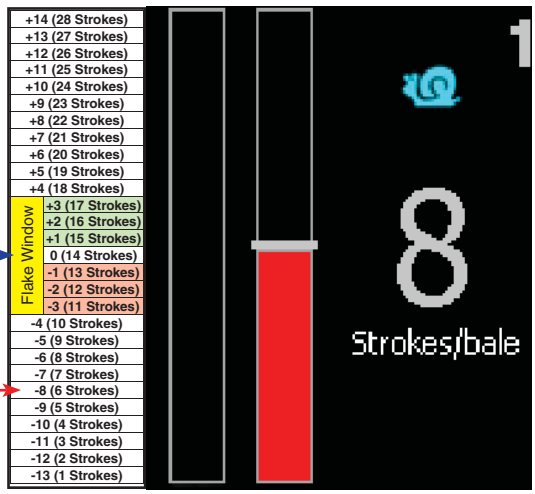
Bale Shape Settings:

Flake Goal: 14
Flake Window: 3

Not enough flakes per bale. Ground speed should be decreased.

Bale should have tied here

Last Bale tied off here



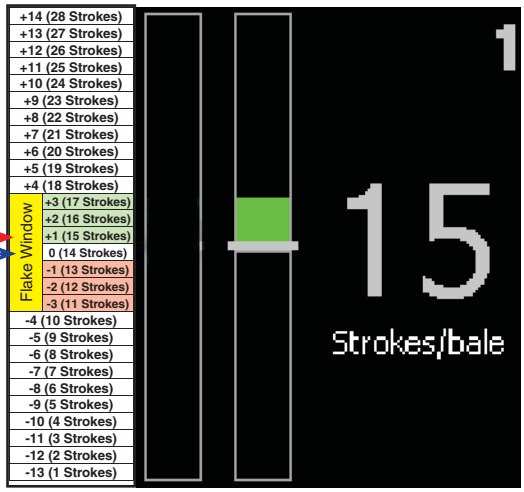
Bale Shape Settings:

Flake Goal: 14
Flake Window: 3

Too many flakes per bale. Ground speed should be increased.

Bale should have tied here

Last Bale tied off here

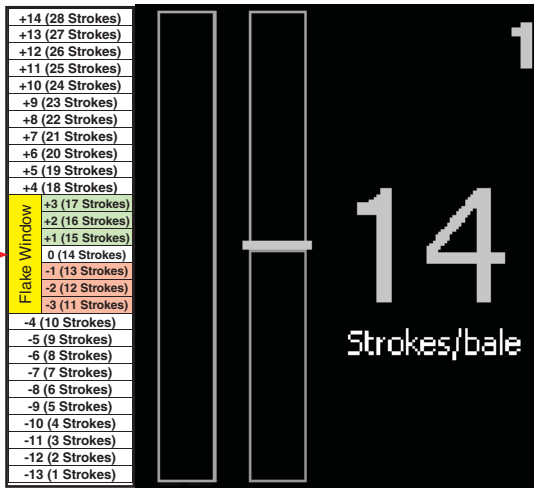


Bale Shape Settings:

Flake Goal: 14
Flake Window: 3

Flake Goal achieved. Ground speed perfect.

Last Bale tied off here



MOUNTING CONSIDERATIONS

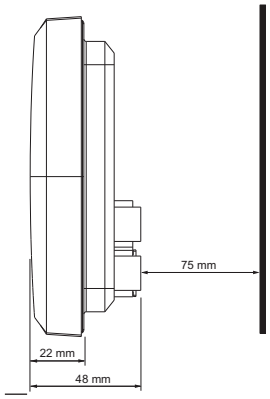
IQAN-MD3 shall be positioned in the machine per the following instructions:

• The unit is designed for outdoor use. Position the unit in desired location and make sure that it is not exposed to mechanical damage.

• The connectors on the reverse side of the unit should be accessible.

• Position the unit so there is no risk that the cabling can be folded, crushed, worn or damaged in any way.

• Leave sufficient room behind the unit to insert connectors. Less than 75 mm clearance will stress the cabling and distort the seals in the connectors. This can cause the environmental specification not to be met.



Take careful consideration when positioning the unit.

• Position the unit so there is no risk to be exposed to external heat, e.g. from the engine or heater.

• The best readability will be achieved by positioning the front face of the unit directly towards the operator.

• Extended periods of exposure to direct sunlight can cause an internal temperature exceeding 75°C / 158°F which may cause permanent degradation of the LCD display.

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