agWEIGH
rinstrum smart weighing

AG-R320
AG-X320

Operator Manual

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1.Introduction

The agWEIGHr range of instrumentation is optimised for stock handling operations using the latest Sigma-Delta A/D technology to ensure fast and accurate weight readings.

1.1. Approvals

- C-tick approved and CE approved.

1.2. Features

Auto Ranging

$$19.05_{kg} \qquad 28.1_{kg} \qquad 1500_{kg}$$

The superior weighing performance of this technology allows the scale to auto range to automatically facilitate fine precision weighing of small items. For example on a set of 2 tonne weigh beams designed to take 300% overload it is possible to weigh at a precision of 50g below 25kg.

Enhanced liveweight algorithms allow fast and accurate measurement of live animals.

SESSIONS:

Three band drafting combined with session and draft statistics including total, average and number of animals can be monitored.

2.Safety

2.1. Operating Environment

- Operating Temperature: –10°C to 50°C
- Humidity: <90% non-condensing
- Operating Voltage: 12VDC (11-15VDC)
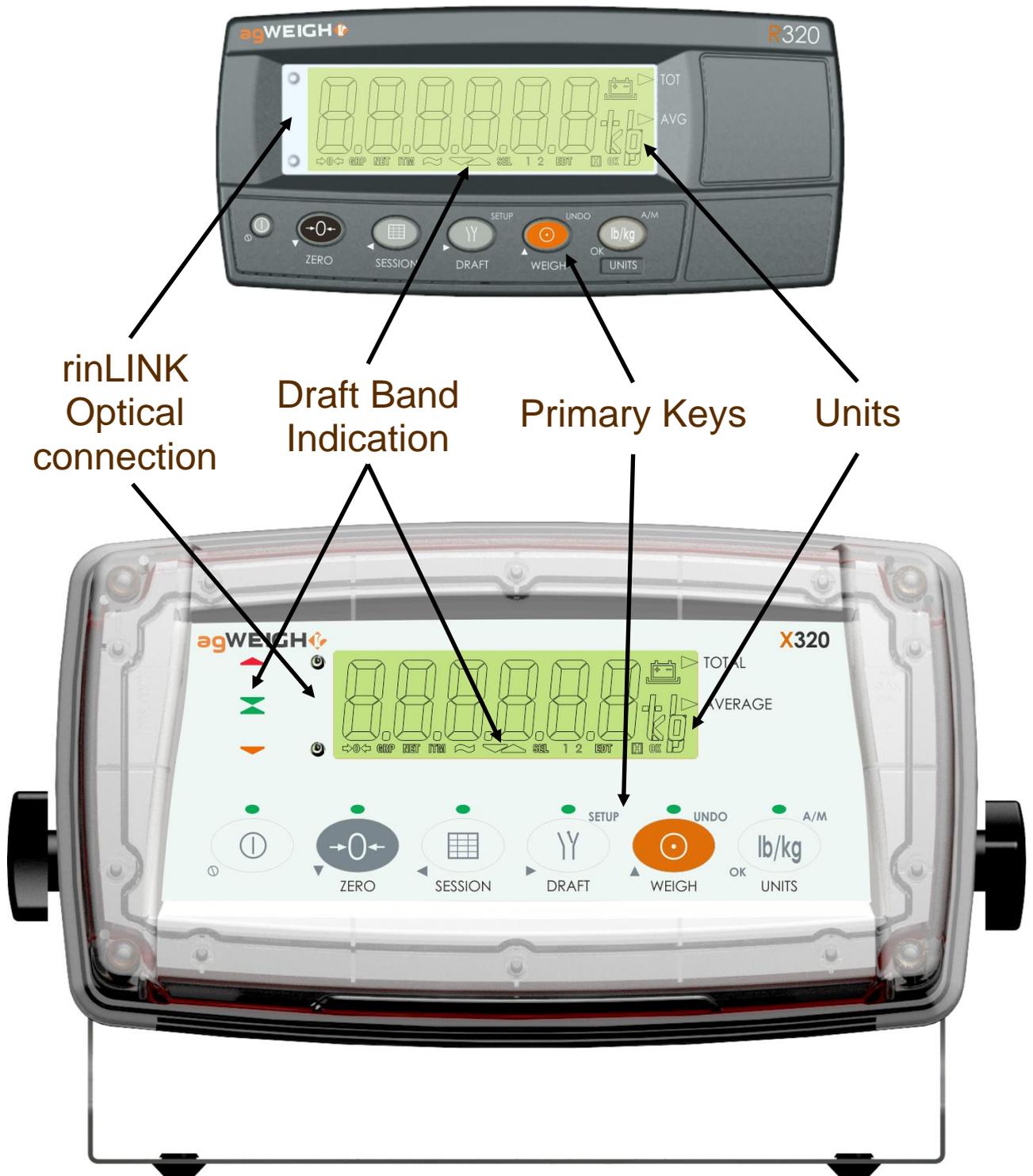
2.2. Electrical Safety

- For your protection all mains electrical hardware must be rated to the environmental conditions of use.
- Pluggable equipment must be installed near an easily accessible power socket outlet.
- To avoid the possibility of electric shock or damage to the instrument, always switch off or isolate the instrument from the power supply before maintenance is carried out.

2.3. Cleaning

- To maintain the instrument, never use harsh abrasive cleaners or solvents. Wipe the instrument with a soft cloth **slightly** dampened with warm soapy water.

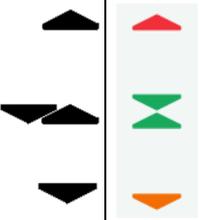# 3. Basic Operation

3.1. User Interface Display and Controls

rinLINK Optical connection

Draft Band Indication

Primary Keys

Units

3.2. Operation Keys

Key	Description
	POWER: The **<POWER>** key is used to turn the instrument on and off. • **ON:** Press and hold the **<POWER>** key until the display starts up. • **OFF:** Press and hold the **<POWER>** key for three seconds. The instrument will display **OFF** followed by the three-second countdown. • **Battery Operation:** When using batteries the backlight may automatically turn off to conserve power after a short period of inactivity. A short press of the **<POWER>** key will turn the backlight on again. • **Automatic On:** The **<POWER>** key has a memory function associated with it. This means that the state of the power setting is remembered even if external power is interrupted. It is therefore possible to turn the instrument on in the safe knowledge that it will operate whenever external power is available and will not need to be manually turned on again if the power is interrupted.

Key	Description
● →0← ▼ ZERO	**ZERO:** The **<ZERO>** key is used to perform a Zero adjustment on the scale display when an empty scale has drifted away from a true zero reading. • The Zero adjustment is stored when power is removed and is re-used when next powered up. • If the weight remains unstable for longer than 10 seconds, the Zero operation is cancelled and the **STABLE ERROR** message is displayed. • **Long Press:** A long press of the **<ZERO>** key will remove any stored zero adjustment.
● ◀ SESSION	**SESSION:** Use the **<SESSION>** key to step through current session statistics including total, average and number of animals in the session • **Long Press:** A long press of the **<SESSION>** key will end the current session and start a new session.
● SETUP ΥΥ ▶ DRAFT	**DRAFT:** If drafting in this session, use the **<DRAFT>** key to step through the current drafting statistics including total, average ad number of animals in the session for each draft band. • **Long Press:** A long press of the **<DRAFT>** key will allow you to change instrument settings including: **TARGET:** Draft Targets **SETUP:** configure instrument settings **CLOC:** set date and time **CAL:** calibrate instrument **TEST :** mV/V reading of the scale for testing

| Key	Description
WEIGH	**WEIGH:** The **<WEIGH>** key will trigger the acquisition of an animal weight using the liveweight alogorithm. In AUTO mode the first animal weight is automatically gathered so it is not necessary to press the WEIGH key unless you want to re-acquire a new weight for the animal. This is sometimes required if the introduction of the animal to the scale has been disrupted during the weighing process or if the animal is distressed and jumping about on the scale which can impact weighing accuracy. • **Long Press:** A long press of the **<WEIGH>** key will UNDO the last animal weight log. This cancels the last transaction from the session log and from all of the statistics. If drafting the LOW output is activated for exit of the animal.
UNITS	**Units:** The **<units>** key toggles the instrument units between pounds and kilograms. Note that both units are captured in the session log so it doesn't matter what units are displayed during operation. • **Long Press:** A long press of the **<units>** key toggles operating modes between AUTO and MANUAL.

3.3. Annunciators

Symbol	Name	Description
➡0⬅	**ZERO**	Weight is within $\pm$ ¼ of a division of true zero.
~	**MOTION**	Weight is unstable.
⎵	**ZERO BAND**	Animal is exiting the scale.
H	**HOLD**	Displayed reading is held. Flashing indicates that the livestock weighing process is underway.
🔋	**LOW BATTERY**	Visible when battery voltage is too low and batteries need recharging.
▲ ⬏ ▼	**HIGH MED LOW**	Drafting bands. These are visible during drafting to indicate which band the animal is being drafted into. These are also visible when displaying draft statistics like TOTAL,AVERAGE and NUMBER of animals assigned to the band.
► TOTAL ► AVERAGE		Indicates which particular statistics are displayed on screen
GRP ITM SEL EDT OK		
	rinLINK	This indicates that the instrument optical data link is active. During this time the serial and Bluetooth data connections are suspended.

4.Instrument Operation

4.1. Static Weighing

Ensure instrument is On and in Manual Mode
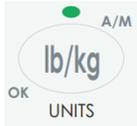
Check that the Zero annunciator is lit and if not, press the <ZERO> key

Place your item on the weigh platform.
Displayed resolution is automatically scaled according to the load. For small items the scale operates in finer resolution.

Read the weight display.

4.2. Manual Animal Weighing

Ensure instrument is On and in Manual Mode

Check that the Zero annunciator is lit and if not, press the <ZERO> key

Introduce the animal onto the scale
Displayed resolution is automatically scaled according to the size of the animal. Smaller animals are weighed in finer resolution.
Press <WEIGH> key to capture and log the animal weight

The HOLD annunciator flashes while weighing the animal and is steady once the weight is captured. Press <WEIGH> to repeat the process if you are concerned that the weight was not captured properly due to animal behaviour.

Release the animal from the scale.

4.3. Automatic Animal Weighing

Ensure instrument is On and in Auto Mode

Check that the Zero annunciator is lit and if not, press the <ZERO> key

Introduce the animal onto the scale
Displayed resolution is automatically scaled according to the size of the animal. Smaller animals are weighed in finer resolution.
The HOLD annunciator flashes while weighing the animal and is steady once the weight is captured.

Press <WEIGH> to repeat the process if you are concerned that the weight was not captured properly due to animal behaviour.

Release the animal from the scale.

4.4. Units Switching (lb/kg)

Press the **<UNITS>** key to switch the display between kilograms and pounds.

4.5. Show Session Statistics
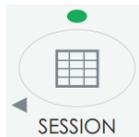
Press <SESSION> key to display current session statistics

Total weight processed in the current session log

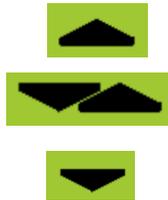Average weight of animals in the current session log

Number of animals in the current session log

4.6. Show Drafting Statistics

Press <DRAFT> key to display current drafting statistics.

Each band is identified by the annunciators at the bottom of the screen:
    HIGH
    MED
    LOW

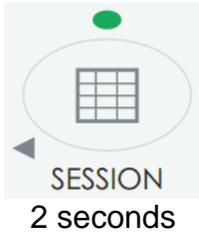Total weight of animals drafted into the highlighted band

Average weight of animals in the band

Number of animals in the band

4.7. Starting a new Session

SESSION
2 seconds

Choose the type of operational data you want to gather in the session from the list of session profiles.

▼▲OK

Default profiles include:
    NONE: No operational data gathered
    DRAFT: Traditional 3 band drafting based on weight

4.8. Changing Draft Targets

Press <DRAFT> for 2 seconds to enter menu

Animals lighter than the Lo target are drafted into the Lo band.
To change the value, move the flashing digit with ◄► keys.
Change the digits with ▼▲ keys. Press OK when done

Animals heavier than the Hi target are drafted into the High band.
To change the value, move the flashing digit with ◄► keys.
Change the digits with ▼▲keys. Press OK when done

All animals not drafted into either Lo or High bands are drafted into the Medium Band

4.9. Configure Scale

Press <DRAFT> for 2 seconds to enter menu and then press <DRAFT> again until SETUP is displayed

2 seconds

Press <OK> to enter SETUP

OK

USE   Select primary USE for the scale:

     CATTLE   large animal weighing.

     SHEEP   smaller animals and high throughput.

     GEn   general purpose weighing

▼ ▲ OK

UnItS   Turn off units switching if not required

Aut.ZEr   Turn auto zero on if required

4.10.   Set Clock Calendar

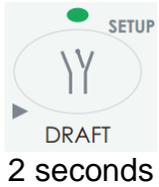Press <DRAFT> for 2 seconds to enter menu and then press <DRAFT> again until CLOC is displayed

Press <OK> to set CLOCK

YEAR, MONTH, DAY, HOUR and MINUTE settings
Use ▼ ◄ ► ▲ oĸ keys to enter numbers

4.11. Calibrate Scale

SETUP

DRAFT

2 seconds

Press <DRAFT> for 2 seconds to enter menu and then press <DRAFT> again until CAL is displayed

CAL

OK

Press <OK> to enter CAL

UN ItS

Select primary units for scale (kg, lb)
▼ ▲ OK

SCALE

Select connected scale from list:
AG-2t, AG-4t, LM-4t, HS-300, OTHER
▼ ▲ OK

(*) **CAP**

Set maximum capacity. Only required for OTHER scales
▼ ◄ ► ▲ OK

(*) **rES**

Set minimum resolution. Only required for OTHER scales
▼ ▲ OK

ZErO

Calibrate zero point.
Remove all weight from scale and press OK

Calibrate span point.

(*) **SPAN**

Place known weight on scale and press OK
Use ▼ ◄ ► ▲ OK to enter weight and press OK

(*) These extra settings are only enabled when using third party scales (OTHER) with the agWEIGHR instruments.

5.Error Messages

5.1. Weighing Errors

Error	Description	Resolution
(U - - - - -)	The weight is below the minimum allowable weight reading.	Check the condition of load cell connections. Check for damaged load cell.
(O - - - - -)	The weight is above the maximum allowable weight reading. Warning - overloading may damage mechanical scale elements.	It is possible that the connected scale has not been calibrated for this instrument
(ZERO) (ERROR)	The weight reading is beyond the limit set for Zero operation. The operation of the **<ZERO>** key is limited in the setup during installation. The indicator cannot be Zeroed at this weight.	Check scale for binding or damage.
(STABLE) (ERROR)	Scale motion has prevented a **<ZERO>**, operation from occurring on command.	Try the operation again once the scale is stable.

5.2. Setup and Calibration Errors

Error	Description	Resolution
(SPAN) (LO)	The load cell signal range (span) is too small for these settings.	Incorrect span weight entered (must be between zero and full scale).
		Scale wiring incorrect. Wrong load cell capacity (too large).
		Wrong or no calibration weight added to scale.
(SPAN) (HI)	The load cell signal range (span) is too large for these settings.	Incorrect span weight entered (must be between zero and full scale).
		Scale wiring incorrect. Load cell capacity too small for application.
(ZERO) (LO)	An attempt has been made to calibrate zero below -2mV/V.	Scale wiring incorrect.
(ZERO) (HI)	An attempt has been made to calibrate zero above +2mV/V.	Remove all weight from scale. Scale wiring incorrect.

5.3. Diagnostic Errors

- Check: Service personnel can check this item on site.
- Return for Service: The instrument must be returned to the manufacturer for factory service.

Error	Description	Resolution
(E0001)	The power supply voltage is too low.	Check supply
(E0002)	The power supply voltage is too high.	Check scale / cables
(E0010)	The temperature is outside of allowable limits.	Check location
(E0100)	The digital setup information has been lost.	Re-enter setup
(E0200)	The calibration information has been lost.	Re-calibrate
(E0300)	All setup information has been lost	Enter setup and calibrate
(E0400)	The factory information has been lost.	Return for Service
(E0800)	The EEPROM memory storage chip has failed	Return for Service
(E2000)	ADC Out of Range Error. This may be caused from a broken load cell cable.	Check load cell cable, wiring, etc.
(E4000)	The battery backed RAM data has lost data.	Re-enter setup
(E8000)	The FLASH program memory is incorrect	Return for Service

The **E** type error messages are additive. For example if instrument is running off batteries and the temperature drops, the battery voltage may be too low. The resulting error messages will be **E0011** (0001 + 0010). The numbers add in hexadecimal as follows:

1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - A - B - C - D - E - F

(For example, 2 + 4 = 6, or 4 + 8 = C)

Notes:

Notes:

SMART WEIGHING SOLUTIONS

rinstrum