ScaleNET

Wi-Fi Weight Transmitter
Installation and Setup Manual

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DISCLAIMER

FCC COMPLIANCE STATEMENT

This equipment generates uses and can radiate radio frequency and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area may cause interference in which case the user will be responsible to take whatever measures necessary to correct the interference.

You may find the booklet "How to Identify and Resolve Radio TV Interference Problems" prepared by the Federal Communications Commission helpful. It is available from the U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 001-000-00315-4.

PROPER DISPOSAL

When this device reaches the end of its useful life, it must be properly disposed of. It must not be disposed of as unsorted municipal waste. Within the European Union, this device should be returned to the distributor from where it was purchased for proper disposal. This is in accordance with EU Directive 2002/96/EC. Within North America, the device should be disposed of in accordance with the local laws regarding the disposal of waste electrical and electronic equipment.

It is everyone's responsibility to help maintain the environment and to reduce the effects of hazardous substances contained in electrical and electronic equipment on human health. Please do your part by making certain that this device is properly disposed of. The symbol shown to the right indicates that this device must not be disposed of in unsorted municipal waste programs.

II

INTRODUCTION

Thank you for purchasing our Cardinal ScaleNET Weight Transmitter. This wireless weight transmitter was built with quality and reliability and has been designed for the environment where weight management through a wireless network is desired.

The purpose of this manual is to provide you with a guide through installation and setup of the ScaleNET Weight Transmitter. Please read it thoroughly before attempting to install the option card in your weight analyzer and keep it handy for future reference.

SPECIFICATIONS

Wireless Network Type:	Soft AP
Service Set Identifier (SSID):	ScaleNET-##*
Wireless Channel:	6
Security:	None
LAN IP Address:	192.168.0.100
LAN Subnet Mask:	255.255.255.0
Temperature Range:	14° to 104° F (-10° to +40° C)
Scale Connections:	(1) four terminal connector block
Diagnostics:	On board LED's – Default, Link, and Power
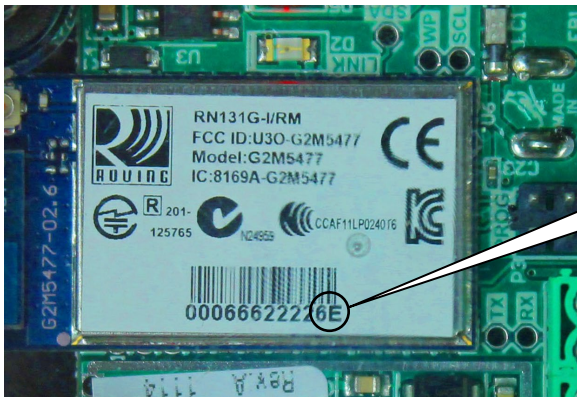
* **NOTE:** ## is the last 2 digits of the MAC address of the module.

PRECAUTIONS

Before using this device, read this manual and pay special attention to all NOTIFICATION symbols:

 IMPORTANT   **ELECTRICAL WARNING**   **STATIC SENSITIVE**

INSTALLATION

Interconnections

ATTENTION! OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

MAKE SURE THE POWER TO THE SCALENET WEIGHT TRANSMITTER IS OFF!
Unplug the power supply cable from the 12VDC jack on the end of the weight transmitter.

1. With the power off, loosen the two (2) screws shown and remove the lid.

2. Loosen the gland connector and then slip the single cable from the load cell or load cell junction box through the gland connector and into the enclosure.

3. Remove 2" of the outer insulation jacket and then remove 1/4" of insulation from each of the 4 wires.

4. Referring to the table below (or the adjacent illustration) for terminal connections, connect each of the wires to terminal block P1.

ScaleNET Connector P1

Terminal		Function
1	(+EXC)	+ EXCITATION
2	(+SIG)	+ SIGNAL
3	(-SIG)	- SIGNAL
4	(-EXC)	- EXCITATION
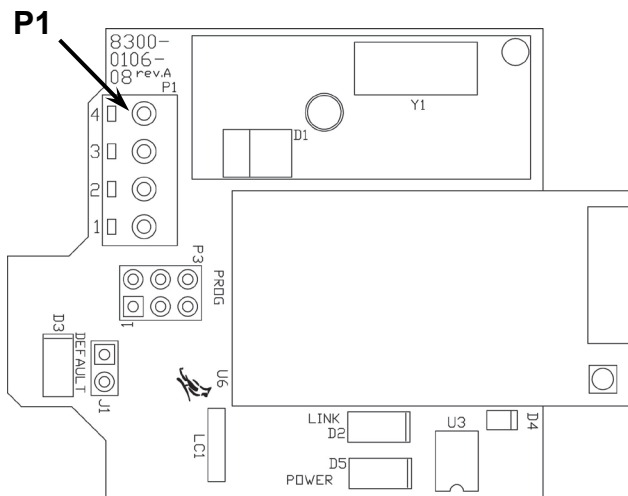
5. To terminate a wire, loosen the screws in the terminal block and then insert the wire into the terminal opening. Tighten the screw to secure the wire in place. **NOTE:** Board may need to be loosened or removed to ease installation of wires. Make sure power jack is properly aligned and tighten in place.

6. Repeat Step 5 until all wires are in place.

7. Re-install the lid and tighten the two (2) screws loosened in step 1.

8. Plug the power supply into the power jack on the side of the ScaleNET and then plug the power supply into a proper electrical outlet.

9. The weight transmitter is now ready to configure for the network.

Plug in Power Supply here
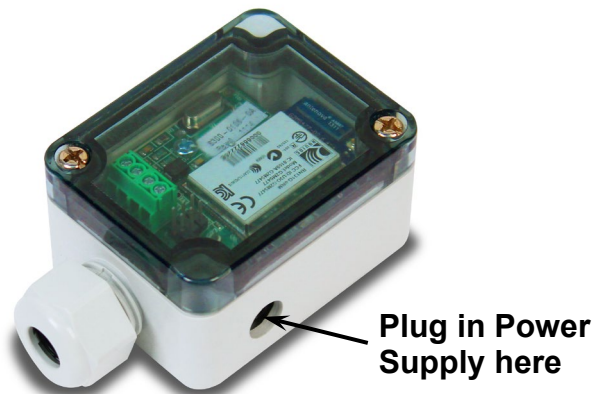
NETWORK CONFIGURATION, CONT.

Connecting to ScaleNET Access Point (Ad Hoc)

From the initial factory settings, ScaleNET weight transmitter will appear as a wireless access point with the name "ScaleNET-##" where ## is the last 2 digits of the MAC address. In order to connect to ScaleNET for initial setup, you will need to connect to it as a wireless access point using a wireless device such as a laptop, PC, tablet or smart phone. Once connected you can make use of the full functionality described in the Operation section below.

Connecting to an Existing Network

In order to set up SCALENET to connect to an existing network:

1. Power on the SCALENET module.

2. Connect to the SCALENET access point.

3. With a PC or laptop, use HyperTerminal or another terminal client to connect to the wireless module IP address and port 10001. The default IP address is 192.168.0.100.

4. Once connected, send three '$' characters and press enter. The module should reply with "CMD" and is now in command mode.

5. To launch the web configuration utility, type "**run web_app**" into the terminal console window and press Enter. This will cause the SCALENET to reboot in the web configuration mode where you can set it to connect to an existing network.

6. Since the module rebooted, you will need to reconnect to the SCALENET access point. Once you have reconnected to the WIFI module, launch a web browser and navigate to

    http://config

If your attempt to browse to this page is unsuccessful, you may need to disable any other Ethernet adapters besides the wireless adapter being used to connect to the SCALENET module. Make sure to start the web configuration app by briefly applying the DEFAULTS jumper before connecting to the SCALENET access point.

You should then be presented with a new page which contains a form that can be used to set up the network configuration to either connect to an existing network, or act as a wireless access point. On the next page is an image of how this screen will appear as well as functional descriptions of each of the settings.

NETWORK CONFIGURATION, CONT.

Reset to Defaults

ATTENTION! OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

In the event that you change the network settings in such a way that you can no longer access ScaleNET or the ScaleNET configuration web page, a jumper has been provided (J1 DEFAULT) to reset the network configuration to the initial factory defaults.

To reset the ScaleNET module to defaults, set the jumper in the shorted position and apply power to the device. You should see the DEFAULT LED (D3) light up while ScaleNET is in the process of resetting the configuration. When the reset to defaults is complete you should see the LED flash 5 times and then go out when it is complete.

> **NOTE:** To gain access to the DEFAUILTS jumper, loosen the 2 screws shown and remove the lid.

It is necessary to completely remove power and re-apply power to ensure that the default settings have taken effect.

This means that it is very important that the DEFAULTS jumper NOT be left in place on the board for normal operation and should only be used if trying to recover a module with incorrect settings.

At this point, ScaleNET should continue with normal operation using the default configuration.
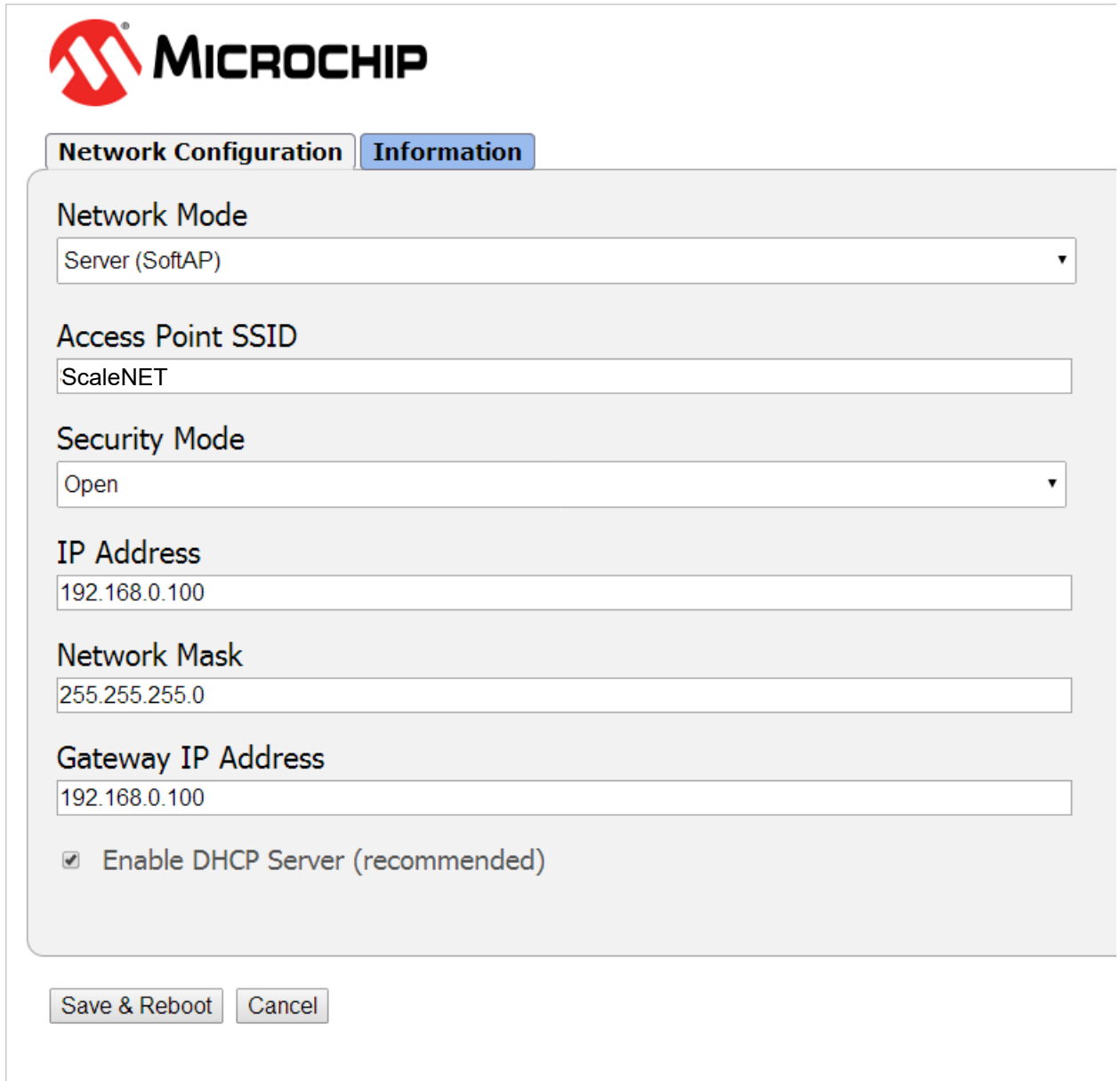
> **NOTE:** The DEFAULTS jumper will launch the configuration web page if set briefly after power up.

DEFAULT LED D3

J1

NETWORK CONFIGURATION, CONT.

Web Configuration Parameter Descriptions – Access Point

The configuration web page in the SCALENET module allows the module to be configured as either an access point, or to connect to an existing network. In order to accomplish this, a new parameter has been added on the web page "Network Mode".

NETWORK CONFIGURATION, CONT.

Web Configuration Parameter Descriptions – Access Point, Cont.

Network Mode – This parameter allows the SCALENET module to be configured as either an access point, or to connect to an existing network.

In order to set up the SCALENET module as an access point, set the mode to "Server (SoftAP).

Access Point SSID – Enter the SSID of the access point you wish to connect to here. If no access point exists with the SSID that is entered, then the SCALENET module will attempt to start an access point with the entered SSID.

Security Mode – When the "Network Mode" is set to "Server (SoftAP)" mode, then this sets the security type that will be used in order to connect to the module acting as an access point. The password used by the connecting device must match the password set on the configuration web page in order to connect to the module.

IP Address – Enter the static IP address of the SCALENET module here.

Network Mask – Enter the desired net mask here.

Gateway IP Address – Enter the default gateway IP address here.

Enable DHCP Server (recommended) – When "Server (SoftAP)" mode is active, the "Enable DHCP Server" checkbox will enable the DHCP server to assign addresses automatically to connecting devices.

NOTE: If this check box is unchecked in this mode, it will be important to set static IP addresses in the devices connecting to the WIFI module that are compatible with the settings that are set in the module itself.

Once all settings have been entered, click "Save & Reboot" at the bottom of the webpage in order to save the parameters.

NOTE: It is very important not to press "Enter" before all of the configuration settings have been properly entered. Pressing "Enter" prior to entering in all of the appropriate settings will submit the information and may put the device into a state where it cannot be connected to. If this happens, it may be necessary to isolate the SCALENET module from wireless signals and use the DEFAULT jumper to restore the network to a known configuration.

NETWORK CONFIGURATION, CONT.

Web Configuration Parameter Descriptions – Client (Infrastructure)

The configuration web page in the SCALENET module allows the module to be configured as either an access point, or to connect to an existing network. In order to accomplish this, a new parameter has been added on the web page "Network Mode".

MICROCHIP

| Network Configuration | Information |

Network Mode

Client (Infrastructure) ▾

Available Access Points:

HP03480E

BLUEROOM

Dynex617

Refresh List

Access Point SSID

BLUEROOM

Security Mode

Open ▾

☑ Use DHCP (recommended)

Save & Reboot   Cancel

NETWORK CONFIGURATION, CONT.

Web Configuration Parameter Descriptions – Client (Infrastructure), Cont.

Network Mode – This parameter allows the SCALENET module to be configured as either an access point, or to connect to an existing network.

In order to set the module to connect to an existing network, change the "Network Mode" to "Client (Infrastructure)".

Available Access Points – Click the "Refresh List" button in order to scan for available access points that the SCALENET module can connect to. You can select an AP by clicking on its name in the list.

Access Point SSID – Enter the SSID of the access point you wish to connect to here. If no access point exists with the SSID that is entered, then the SCALENET module will attempt to start an access point with the entered SSID.

Security Mode – When the "Network Mode" is set to "Client (Infrastructure)" mode, this sets the security type that the module will use to attempt to connect to the existing network. This will be beneficial when attempting to connect to certain secured networks that the older firmware was having issues in properly detecting the security type.

Use DHCP (recommended) – When "Client (Infrastructure)" mode is active, the "Use DHCP" will cause the module to try and obtain an IP address automatically when it connects to an existing network.

NOTE: Having this box checked may make the module difficult to locate on an existing network unless the existing network has been configured to always assign the same IP address to the WIFI module.

When set to connect to an existing network, it is recommended to use static IP addressing in order to make connecting to the module easier.

Once all settings have been entered, click "Save & Reboot" at the bottom of the webpage in order to save the parameters.

NOTE: It is very important not to press "Enter" before all of the configuration settings have been properly entered. Pressing "Enter" prior to entering in all of the appropriate settings will submit the information and may put the device into a state where it cannot be connected to. If this happens, it may be necessary to isolate the SCALENET module from wireless signals and use the DEFAULT jumper to restore the network to a known configuration.

SCALENET SETUP UTILITY (PC / IOS / ANDROID)

Running the Application

To run on your PC, simply launch the **ScaleNET_PC.jar** executable file by double clicking it. To install the app on your iOS® or Android® device, you will need to obtain the app from the iTunes® App Store or the Google® Play App Store. Once installed, you may launch the ScaleNET utility in the normal way for your mobile device.

NOTE: The PC application and the Links to the iTunes® App Store or the Google® Play App Store are located in the "ScaleNET Application Programs" folder on the ScaleNET Application Programs and Documentation CD, 8300-M105-O1.
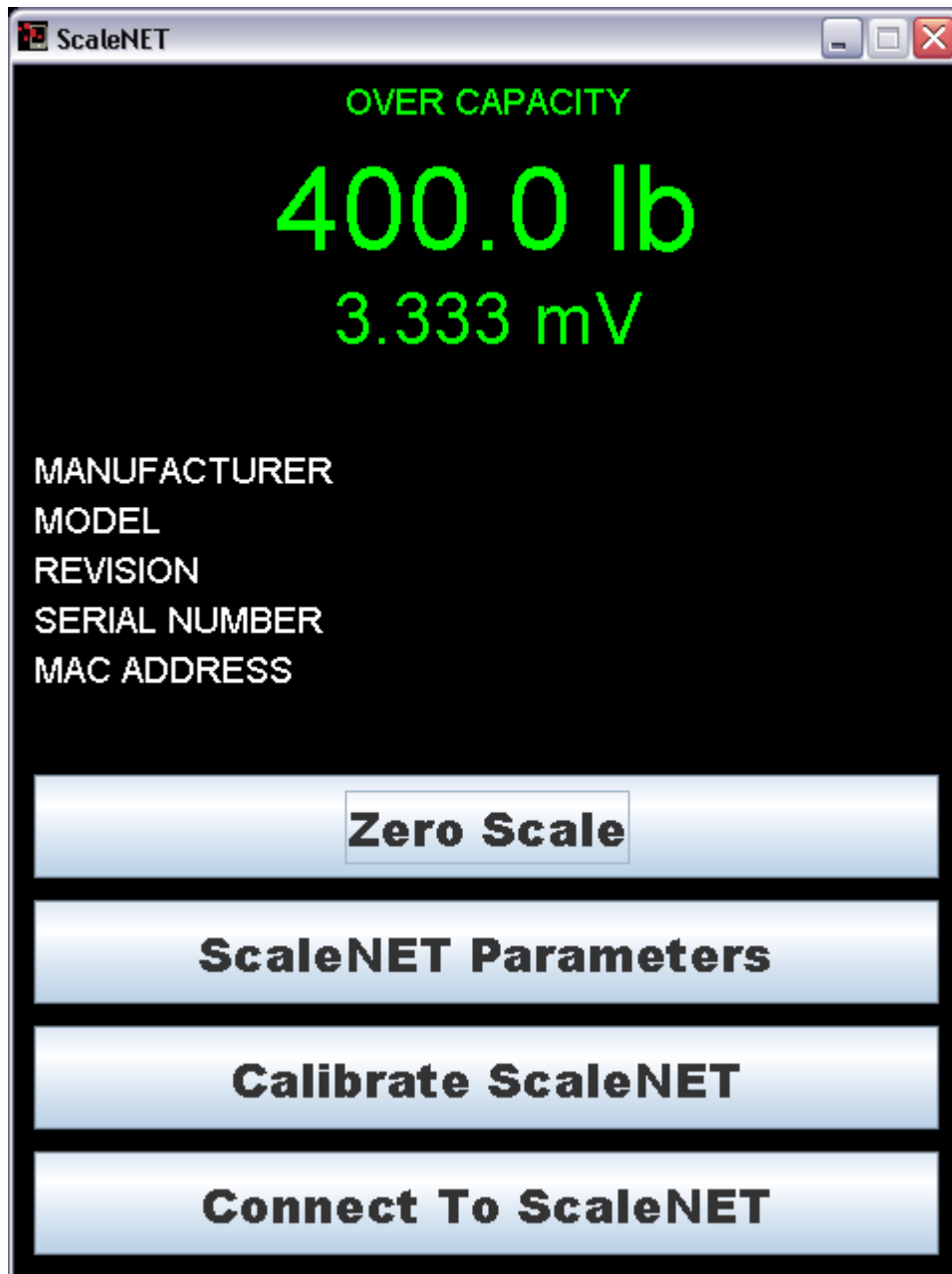
Connecting To ScaleNET

The first step in configuring ScaleNET using the setup utility is to connect to the device. Do this by pressing the "Connect to ScaleNET" button at the bottom of the application. This will bring up a pop up dialog requesting the IP address of the ScaleNET module
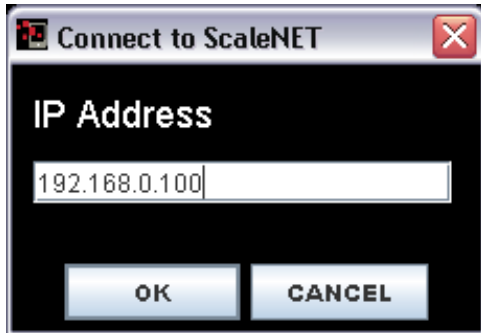
that you wish to configure. Enter the IP of the ScaleNET module and select "OK".
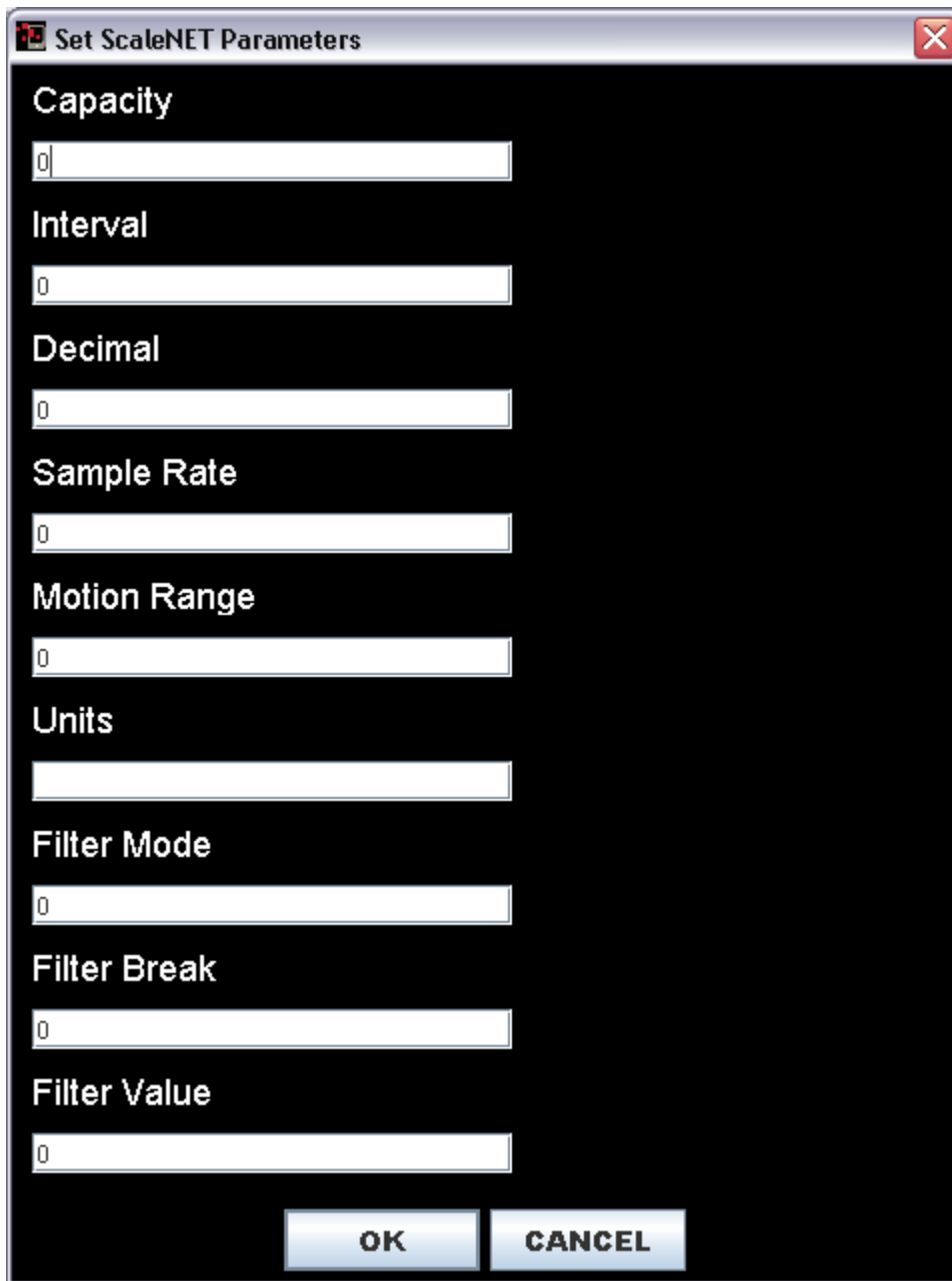
NOTE: Due to limitations of certain Android OS revisions, you may not be able to directly connect to ScaleNET when it is set to be an access point with your mobile device. You may still connect to the ScaleNET module by first connecting it to an existing network and then connecting the mobile device running the ScaleNET setup utility to the same network.

ScaleNET Parameters

The second step in configuring ScaleNET is to set the desired setup and operation parameters by selecting the "ScaleNET Parameters" button in the application. This will open the parameter dialog where values can be edited. If you have connected to ScaleNET correctly, you should see the current parameter values.

NOTE: If you just see zeros in the parameter fields, you may have not properly connected.

ScaleNET Parameters, Cont.

Capacity

The current setting for the **Capacity** parameter (capacity of the scale) will be shown. If the setting displayed is acceptable, proceed to the next parameter.

Otherwise, enter a new value for the capacity of the scale and proceed to the next parameter. Note that the Capacity cannot exceed 5 digits.

Allowable values are **1** through **65,535**.

Interval

The current setting for the **Interval** parameter (minimum increment of weight reading) will be shown. If the setting displayed is acceptable, proceed to the next parameter.

Otherwise, enter a new value for the interval and proceed to the next parameter.

Allowable values are **1**, **2**, **5**, **10** or **20**.

Decimal

The current setting for the **Decimal** parameter (interval decimal places) will be shown. If the setting displayed is acceptable, proceed to the next parameter.

Otherwise, enter a new value for the interval decimal places and proceed to the next parameter.

Allowable values are **0** to **3**.

  0 = ######   **1 = #####.#**   **2 = ####.##**   **3 = ###.###**

Sample Rate

The current setting for the **Sample Rate** parameter (samples per seconds) will be shown. If the setting displayed is acceptable, proceed to the next parameter.

Otherwise, enter a new value for the sample rate and proceed to the next parameter.

Allowable values are **1** to **100**.

Motion Range

The current setting for the **Motion Range** parameter (the number of divisions of change permitted before indicating unstable) will be shown. If the setting displayed is acceptable, proceed to the next parameter.

Otherwise, enter a new value for the motion range and proceed to the next parameter.

Allowable values are **1** to **20**.

ScaleNET Parameters, Cont.

Units

The current setting for the **Units** parameter (unit of measure) will be shown. If the setting displayed is acceptable, proceed to the next parameter.

Otherwise, enter a new value for the Units (up to 3 ASCII characters) and proceed to the next parameter.

Allowable values are up to 3 ASCII characters.

Examples:

  LB (pounds)   **KG (kilograms**   **TON (tons)**

Filter Mode

This parameter controls the type of filtering enabled on the weight samples.

The current setting for the **Filter Mode** parameter will be shown. If the setting displayed is acceptable, proceed to the next parameter.

Otherwise, enter a new value for the filter mode and proceed to the next parameter.

Allowable values are **0** to **2**.

VALUE	DESCRIPTION
0	Off – No filtering of weight samples
1	Infinite Impulse Response – This filter is good at filtering out long wave noise from the scale weight readings.
2	Finite Impulse Response – (default) This filter is good at filtering out short wave noise from the scale weight readings.

Filter Break

This parameter controls how quickly the weight must change in order to reset or 'break out' of the current filter. This parameter affects the responsiveness of the filtering to rapid weight changes.

The current setting for the **Filter Break** parameter will be shown. If the setting displayed is acceptable, proceed to the next parameter.

Otherwise, enter a new value for the filter break and proceed to the next parameter.

Allowable values are **0** to **64**.

ScaleNET Parameters, Cont.

Filter Value

This parameter controls the amount of filtering that is being applied to the weight samples. A higher value means more filtering is applied while a lower value would mean less filtering is being applied.

The current setting for the **Filter Value** parameter will be shown. If the setting displayed is acceptable, proceed to the next parameter.

Otherwise, enter a new value for the filter break and proceed to the next parameter.

Allowable values are **0** to **128**.

OK	CANCEL

OK

Once the values for all the parameters have been entered, press "OK" to update the values in the ScaleNET module.

CANCEL

Press "CANCEL" to exit without saving any changes.

Calibrate ScaleNET

Calibrating ScaleNET is a two step process. You must go through the following procedure twice, once with a test weight and once with zero weight. These two weighments allow for an accurate calibration of the ScaleNET module.

Begin by pressing the "Calibrate ScaleNET" button. The utility will prompt for the weight on the scale in a pop up dialog.

Enter in the amount of the test weight, and make sure that the test weight is seated on the scale before selecting "OK" to begin the calibration. This dialog will remain after clicking "OK" for approximately 10 seconds while the ScaleNET module is performing the calibration. Once it has disappeared you will see a pop up message indicating that the first calibration step is complete. The Calibrate ScaleNET dialog will reappear.

This time enter in "0" for the weight and make sure that the scale is clear of weight and obstruction before selecting "OK". This dialog will remain visible for approximately 10 seconds again as the ScaleNET module performs the second calibration. Once this dialog disappears the calibration is complete.

Additional Information

On the display of the application you will see the current scale weight, along with the current mV output of the load cells. Below this you will see information about the module including the model, revision, serial number, and MAC address of the connected ScaleNET module.

COMMUNICATION PROTOCOL

To connect to ScaleNET, you must make a TCP client connection to ScaleNET's IP address at port 10001. Once connected to this port, you can issue the commands described below to ScaleNET.

Cardinal Weight Format

[ENQ] - (Hex 05) character sent to the ScaleNET will respond with the following weight string:

Pxxxxxx^UU^M^SS^CR (no decimal point in weight)

PxxxxxxD^UU^M^SS^CR (decimal point in weight)

Where:

P	=	polarity (space if positive, - if negative)
xxxxxx	=	weight with leading spaces
D	=	decimal point (embedded where necessary)
^	=	space (hex 20)
UU	=	units, upper case (LB, KG, TN, etc.)
M	=	mode, upper case (G=gross, N=Net)
SS	=	status, upper case (CZ=center-of-zero)
MO	=	motion, BZ=gross weight below zero
EE	=	entry - Input in progress, OC=over capacity)
CR	=	carriage return (hex 0D)

SMA Command Set

Key to Symbols Used.
All characters used are printable ASCII except [CR] [LF] [SPACE] and [ESC].

[ ]	Square bracket symbols are used to bracket communication fields and identify non-printable ASCII characters.
[LF]	Line Feed character used for start of data frame (0A hex).
[CR]	Carriage Return character used for end of data frame (0D hex).
'_' or [space]	The underscore or [space] are used to denote an ASCII space character (20Hex).
:	ASCII colon used as a field delimiter (3A hex)
'-'	ASCII center dash character (2D hex)
'?'	ASCII question mark character is used for unrecognized or unsupported commands (3F hex).
'c'	Command characters all printable ASCII characters.
[s], [r], [n], [m], [f] or space	Scale status indicators; ASCII letter characters or space

SMA Command Set, Cont.

[r], [e], [c], [m], or space   Scale diagnostic indicators; ASCII uppercase characters or space

[xxxxxx.xxx]   Weight data including minus sign (right justified when needed) and decimal point (if needed). Leading spaces are used with a leading zero to the left of the decimal point if needed. This field is always fixed at 10 characters in length. During some error condition this field is filled with '-' dashes.

        Examples:

            [_ _ _ _ _0.000]
            [_ _ _ _11.120]
            [_ _ _ _ -1.000]
            [_ _ _ _1:08.0]
            [- - - - - - - - -]

[yyyyyy]   Text field of printable ASCII characters used to convey scale information. This field will not exceed a maximum of 25 characters.

[uuu]   Unit-of-Measure abbreviation. This field is always 3 characters long with a trailing space(s) when appropriate.

Standard Command Set

Request Displayed Weight

Command: [LF]W[CR]

Response: Scale returns **W**eight and status information immediately.

[LF][s][r][n][m][f][xxxxxx.xxx][uuu][CR]

Request High-Resolution Weight

Command: [LF]H[CR]

Response: Scale returns **H**igh-resolution (10x) weight and status information immediately.

NOTE: The Gross/Net status indicator [n] will be in lower case during high resolution weight transmission.

[LF][s][r][n][m][f][xxxxxx.xxx][uuu][CR]

Standard Command Set, Cont.

Request Scale to Zero

Command: [LF]Z[CR]

Response: Scale attempts to zero itself and reports zero status in the [s] status indicator.

[LF][s][r][n][m][f][xxxxxx.xxx][uuu][CR]

Repeat Weight Continuously

Command: [LF]R[CR]

Response: Scale **R**epeats weight and status information continuously until another [LF]R[CR] command is received.

[LF][s][r][n][m][f][xxxxxx.xxx][uuu][CR]

Invoke Scale Diagnostics

Command: [LF]D[CR]

Response: The scale runs scale diagnostics and sends a diagnostic response message with the results of the tests.

[LF][r][e][c][m][CR]

Where:

[LF] Start of diagnostic response
[r] 'R' = RAM or ROM error, '_' = OK
[e] 'E' = EEPROM error, '_' = OK
[c] 'C' = Calibration error, '_' = OK
[m] Manufacturer specified, printable character, '_' = OK
[CR] End of diagnostic message

About Scale First Line

Command: [LF]A[CR]

Response: The scale will send the first line of the **A**bout scale data.

[LF]SMA:2/1.0[CR]

Standard Command Set, Cont.

About Scale Scroll

Command: [LF]B[CR]

Response: The scale will send the rest of the A**B**out the scale data.

First request: [LF]MFG:Cardinal Scale[CR]
Second request: [LF]MOD:ScaleNET[CR]
Third request: [LF]REV:[revision][CR]
Fourth request: [LF]SN :[serial number][CR]
Fifth request: [LF]OP1:[MAC address][CR]
Sixth request: [LF]END:[CR]

Example:

Command	Response
[LF] A [CR]	[LF]SMA:2/1.0 [CR]
[LF] B [CR]	[LF]MFG:Cardinal Scale [CR]
[LF] B [CR]	[LF]MOD:ScaleNET[CR]
[LF] B [CR]	[LF]REV:02-02 [CR]
[LF] B [CR]	[LF]SN_:1234567890U812 [CR]
[LF] B [CR]	[LF]END: [CR]

NOTE: If the host should ask for additional 'B' status then.

[LF] B [CR]   [LF] ? [CR]

Extended Command Set

Parameter Configuration Commands:

Set Parameter

Command: [LF]X>[parameter name]=[value][CR]

Response: [LF]OK[CR]   If parameter was correctly set

                  [LF]?[CR]   If command or parameter not recognized.

Valid parameters and their accepted values:

CAPACITY	1 – 65535
INTERVAL	1, 2, 5, 10, 20
DECIMAL	0 – 3
SAMPLERATE	1 – 100
MOTION	1 – 20
UNITS	Up to 3 ASCII characters
FILTERMODE	0 – 2 (see ScaleNET Parameters for information)
FILTERBREAK	0 – 64 (see ScaleNET Parameters for information)
FILTERVALUE	0 – 128 (see ScaleNET Parameters for information)
CONVFACTOR	0 – 9999999.999
DEADLOADC	0 – 4294967296
FLAGS	0 – 4294967296

Get Parameter

Command: [LF]X<[parameter][CR]

Response: [LF][parameter]=[value][CR]

NOTE: The same parameters listed for the set command will work with the addition of:

CHECKSUM

DEADLOADCNT

DEADLOADW

Extended Command Set, Cont.

Calibration Commands:

Loaded Calibration

Command: [LF]XL[test weight][CR]

Response: [LF]XL=ERROR-BAD LOADED WT[CR]
                       If the test weight value is not read correctly.
                  [LF]XL=CALIBRATING[CR]
                       When calibration has started
                  [LF]XL=CAL COMPLETE[CR]
                       When calibration complete (requires that the XU command
                       have been ran previously)
                  [LF]XL=READY FOR XU CMD[CR]
                       When the ScaleNET is ready for the zero weight
                       calibration

NOTE: It is important to make sure that the test weight is loaded and settled before issuing this command!

Unloaded Calibration

Command: [LF]XU[CR]

Response: [LF]XU=CALIBRATING[CR]
                       When calibration has started
                  [LF]XU=CAL COMPLETE[CR]
                       When calibration complete (requires that the XL command
                       have been ran previously)
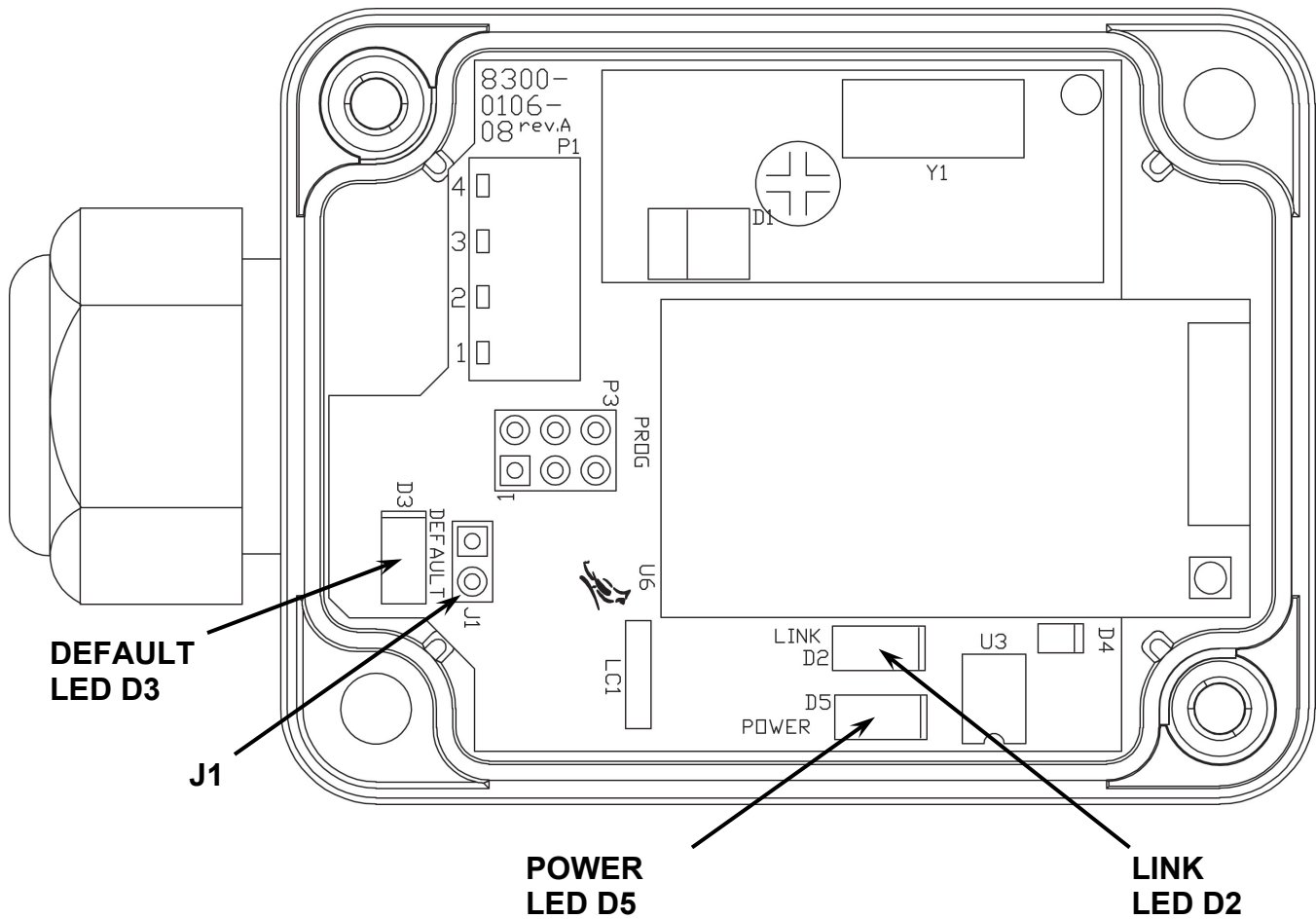   [LF]XU=READY FOR XL CMD[CR]
                       When the ScaleNET is ready for the test weight calibration

NOTE: It is important to make sure that the scale is empty and settled before issuing this command!

TROUBLESHOOTING

Status LED's

The ScaleNet has 3 LED's to indicate run time status and errors to the user.

DEFAULT
LED D3

J1

POWER
LED D5

LINK
LED D2

D3 – DEFAULT

This LED will illuminate to indicate the ScaleNET is in the process of resetting the configuration. When the reset to defaults is complete you should see the LED flash 5 times and then go out when it is complete.
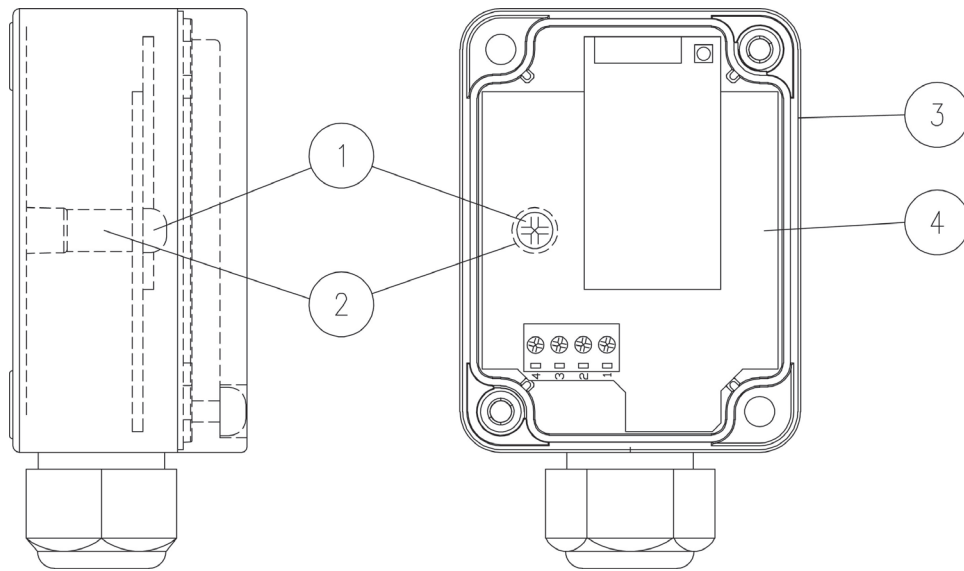
D2 – LINK

This LED displays the communication status. It will be on or flashing rapidly when communications between the ScaleNET and the network is established.

D5 – POWER

This LED will illuminate to indicate the ScaleNET is powered up and running.

PARTS IDENTIFICATION

ITEM	QTY	PART NO.	DESCRIPTION
1	1	6021-1100	#4-40x.6875 PAN HD MACH SCW
2	1	6680-1015	SPACER #4x.375 SELF RETAINING
3	1	8300-B103-08	MODIFIED ENCL.
4	1	8300-0106-0A	PCB ASSEMBLY