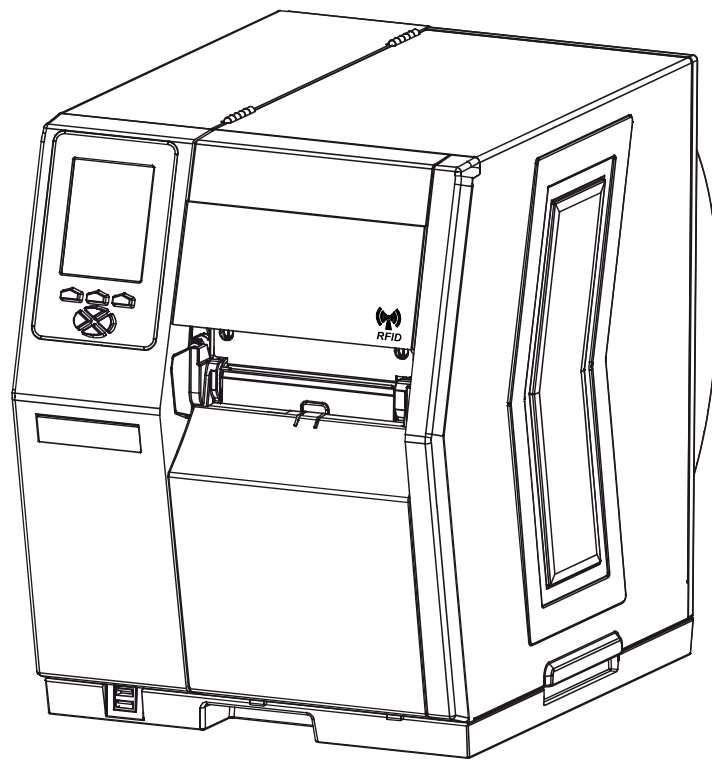


# H-Class™

RFID Option ■■■



right by our customers. ■■■



datamax•oneil



This guide presents a systematic overview of important media requirements, setup options, and modes of use for Datamax-O'Neil H-Class RFID-equipped printers.



- This device complies with FCC Radio Frequency exposure limits for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body. If 20cm distance cannot be maintained, end users are to be 20cm from printer extremity.
- Any changes or modifications to this RFID module not expressly approved by Datamax-O'Neil Corporation will void the user's authority to operate the equipment.
- Operation is subject to the following conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of this device.

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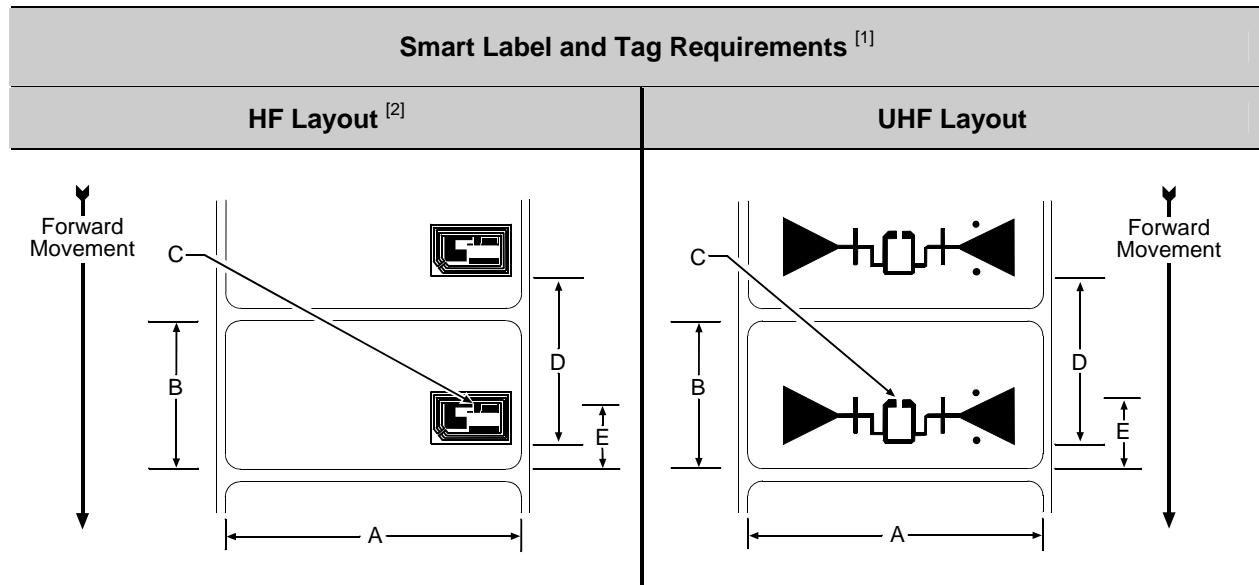
*☑ Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.*

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## Step 1: Know the RFID Media

Depending upon the type of encoder in your printer, ensure that your RFID media meets the following specifications:



Definitions <sup>[3]</sup>			
Designator	Description	Dimension (inches)	Dimension (millimeters)
A	Label Width	4.00	101.6
B	Label Lengths	2.00, 4.00, & 6.00	50.8, 101.6, & 152.4
C	Chip Location Tolerance	± 0.05	± 1.3
D	Label Pitch (minimum)	1.75	44.4
E	Chip Inlay Location	1.10	27.9

<sup>[1]</sup> Reference the *Operator's Manual* for additional standard media requirements.

<sup>[2]</sup> The HF RFID Chip Inlay Location can be left, right, or center justified.

<sup>[3]</sup> These definitions are referenced while looking down onto the labeling side of the media, and from the leading edge of the label (or tag) as it moves forward through the printer.

**Note:** If you have questions regarding selection, contact a Datamax-O'Neil Media Representative at (407) 523-5650.



## Step 2: Know the Printer

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For easy setup and configuration, most RFID settings can be modified via the Control Panel. Depending upon your RFID hardware option, the factory default settings are as follows:

- **HF RFID Default Settings** (RFID MODE = HF):

RFID POSITION = 1.10

HF SETTINGS:

TAG TYPE = ISO 15693

RETRY ATTEMPTS = 3

- **UHF RFID Default Settings** (RFID MODE = UHF):

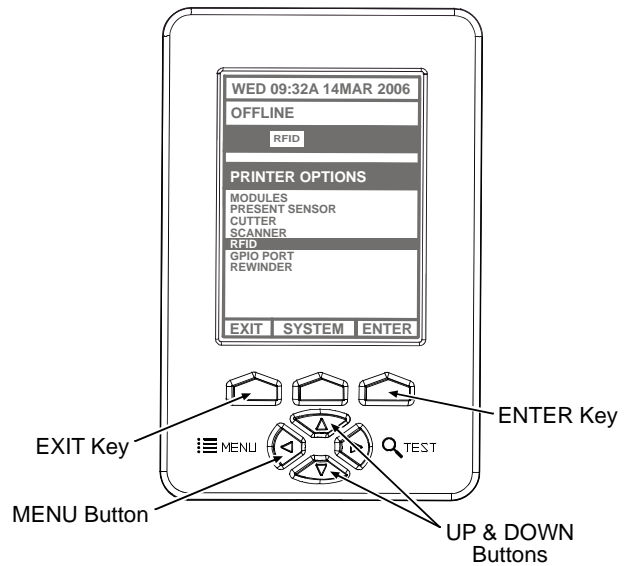
RFID POSITION = 1.10

UHF SETTINGS:

TAG TYPE = GEN 2

TAG DATA SIZE = 96-BIT

RETRY ATTEMPTS = 3



To change a factory default setting using the Control Panel, begin by accessing the ADVANCED MENU:

- 1) Press **MENU**.
- 2) Using the **UP** or the **DOWN Buttons**, scroll to SYSTEM SETTINGS then press **ENTER**.
- 3) Scroll to MENU MODE then press **ENTER**.
- 4) Scroll to ADVANCED MENU then press **ENTER**.

Next, select the factory default setting to be modified (for example, RETRY ATTEMPTS):

- 1) Press **MENU**.
- 2) Scroll to PRINTER OPTIONS then press **ENTER**.
- 3) Scroll to RFID then press **ENTER**.
- 4) Scroll to the factory default setting to be modified then press **ENTER**.
- 5) Enter the desired setting or parameter then press **ENTER**.
- 6) Press **EXIT**; and, at the SAVE CHANGES prompt, press **YES**.

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*Notes:* (1) If **NOT INSTALLED** is displayed after selecting RFID, then the device is not equipped or is not communicating. In this case, proceed to the MODE setting and ensure that the correct RFID device has been selected.

(2) For User Interface details, see the Operator's Manual.

(3) To restore factory defaults, select **SET DEFAULTS** in the RFID options menu.

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To complete the setup, encoded data can be exported to a host device (with proper cabling) by enabling OPTION FEEDBACK. The data is contained in the form <A;B;C;D;E;F>[CR] where:

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A - Is the device type: R = RFID; and, S = Linear Scanner.

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B - Is the status: C = entire label complete; F = faulted (failed) label; and, U = unknown.

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C - Is the number of expected reads for bar codes or tags, given in two characters.

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D - Is the number of good reads for bar codes or tags, given in two characters.

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E - Is the printer's internal Job and Sub Job Identifier, given in four characters each.

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F - Is the data that was read, delimited with semicolons (;) on multiple reads.

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Enable OPTION FEEDBACK as follows:

- 1) Press **MENU**.
- 2) Using Scroll to COMMUNICATIONS then press **ENTER**.
- 3) Scroll to HOST SETTINGS then press **ENTER**.
- 4) Scroll to OPTION FEEDBACK then press **ENTER**.
- 5) Enter the desired output format (RFID HEX or RFID ASCII) then press **ENTER**.
- 6) Press **EXIT**; and, at the SAVE CHANGES prompt, press **YES**.



### **Step 3: Calibrate the RFID Tag**

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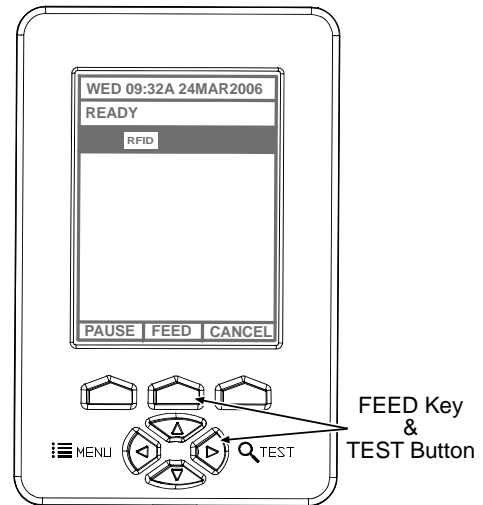
To establish the critical tag to transducer distance setting and nominal power requirements, the printer features two different RFID tag calibration methods, Quick and Standard. As shown below, while the amount of operator interaction differs, both calibration methods accomplish the same result. Before calibrating ensure that

- RFID media has been loaded;
- The Media Sensor has been calibrated for the RFID media; and,
- The RFID option has been enabled.

See the *Operator's Manual* for details. Proceed with the RFID Tag calibration by choosing your preferred method and executing the steps required:

- **Quick RFID Calibration –**

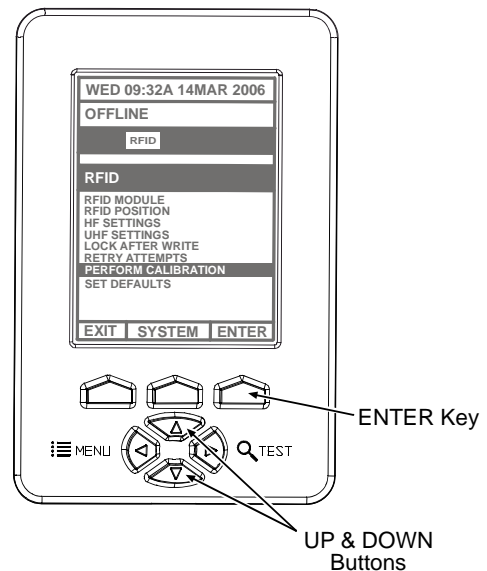
With the printer at READY, simultaneously press **FEED** and **TEST**;



– or –

- **Standard RFID Calibration –**

- 1) From the ADVANCED MENU, press **MENU**.
- 2) Using the **UP** or **DOWN** Button, scroll to PRINTER OPTIONS and press **ENTER**.
- 3) Scroll to RFID and press **ENTER**.
- 4) Scroll to PERFORM CALIBRATION and press **ENTER**.



Using either method, you will be prompted to PERFORM CALIBRATION? Answering YES at the prompt will initiate the process (while NO will terminate it). If yes, the CALIBRATING RFID message will appear and the printer will begin scanning the media for the RFID tag location. Once located, power calibration occurs. *Wait briefly while both processes finish.*

Upon completion the media is retracted to the TOF position; a brief outcome message is displayed; and, the database is updated with the new parameters.

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✓ *Note: If using the Standard RFID Calibration method, an additional pop-up window allows detailed calibration results to be viewed and printed (see below).*

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This is the optimum power level and tag position that was established and set in the printer during the RFID Calibration process.

**RFID TAG REPORT**  
WED 09:52AM 12 APR2006  
POWER LEVEL  
0dB  
RFID POSITION  
1.41in.

POSITION	OUTCOME	POWER	OUTCOME
1.10in.			
1.14in.	RW	-4dB	RW
1.18in.	RW	-3dB	RW
1.22in.	RW	-2dB	RW
1.26in.	RW	-1dB	RW
1.30in.	RW	0dB	RW
1.33in.	RW	1dB	RW
1.37in.	RW	2dB	RW
1.41in.	RW	3dB	RW
1.45in.	RW	4dB	RW
1.49in.	RW		
1.53in.	RW		
1.57in.	RW		
1.61in.	RW		
1.65in.	RW		
1.69in.	RW		
1.73in.	RW		
1.77in.			
1.81in.	R		
1.85in.			

These are tested tag positions and outcomes, where:  
RW = Read/Write;  
R = Read; and  
blank = unreadable.

After establishing the tag position, these are the tested power levels and outcomes, where:  
RW = Read/Write;  
R = Read; and  
blank = unreadable.



## Step 4: RFID Programming Modes

The printer features two different operational modes for tag programming:

- **Direct Mode** allows user (Host) control of RFID reading and writing, where each tag is individually processed with status and data responses.
- **Label Formatting Mode** uses the printer configuration to process all RFID read, write, and exceptions as determined by a label format, and supports automatic increment and decrement commands for numeric, alphanumeric, or hexadecimal.

☑ *Note:* (1) Both programming modes will auto-position to the RFID tag location.  
(2) Reference the Class Series 2 Programmer's Manual for detailed programming information.