

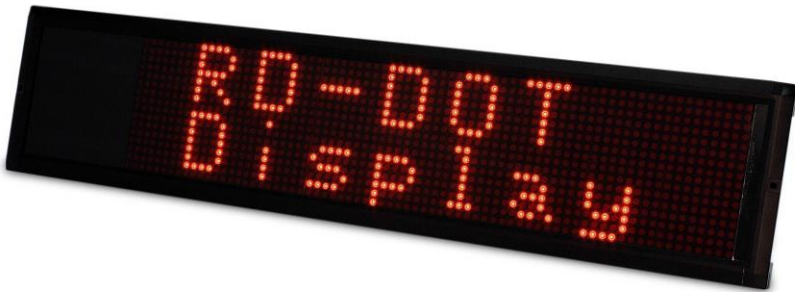


RD-DOT

DOT MATRIX REMOTE DISPLAY

OPERATION MANUAL

PLEASE READ THIS MANUAL VERY CAREFULLY BEFORE
ATTEMPT TO OPERATE THE UNIT



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Specifications subject to change without prior notice

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1. Introduction

RD-DOT provides flexible and easy solution for a wide range of real time (e.g. weight values during a weighing process, headline news, number of empty parking spaces) or pre-determined info (e.g. advertisements and general notes) displaying applications.

Real time info is sent via hardwire cable or wireless transmission from an external signal device (e.g. weighing instrument, computer or data generator) to RD-DOT for instance and online display with or without other pre-determined info.

After pre-determined info has been uploaded RD-DOT, RD-DOT is ready for offline display anytime and anywhere power is available.

The RD-DOT contains of 18 display modules. Each module is made of 8 x 8 matrix super bright LED.

RD-DOT provides high-visibility 9 x full size (6 x12cm) or 18 x half size (6 x 6cm) simultaneously. Data bank up to 20 user programmable text messages, each message up to 35 characters, is built-in.

The auto baud rate detection function allows RD-DOT to determine data baud rate sent by the weighing instrument and external signal device. 4 protocol data bases support automatic recognition of data format sent by the weighing instrument and external signal device.

To facilitate easy configuration and control, please contact your dealer for more information.

Optional features include wireless data transmission module and cable remote controller.

2. Installation & Error Codes

RD-DOT must be firmly installed (e.g. mount to the wall or hung in the air) by the mounting accessories enclosed. In case of hanging installation, the RD-DOT must be hung via a strong media, e.g. a wire rope, to a firm support that can support at least 20kg. Avoid using the RD-DOT in any environments where excessive wind flow, vibration, radio frequency interference may cause danger.

When a wireless remote controller is used, the effective non-obstructed transmission distance is about 15m. Replace battery inside the remote controller when the transmission distance is shortened.

2.1 Cautions

- This is not a toy, keep out of reach of children.
- This unit is not an explosion proof device.
- This unit is not a water proof device.
- Do not open this unit, no user serviceable parts inside. Always contact your dealer for service.

2.2 Error Codes Table

Error Code	Description
E1	Command entered is unknown
E2	Length of parameter value entered is out of range
E3	Parameter value entered is unknown
E4	Illegal value/non-numeric data entered
INPUT ERROR	Input value is not logical
No Signal	No incoming weight signal found
Fail	Baud rate detection fail
BLANK	Text number with blank info is selected (when programming SCROLL AUTO)

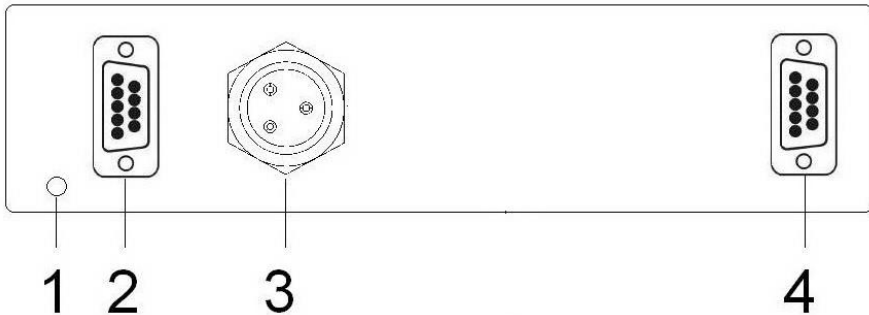
3. Specifications

MODEL NUMBER	RD-DOT
Display Module	18 x Super Bright Display Modules. Each module Consists of = 8 x 8 LEDs
Display Capability (No Slide)	9 full size (6 x12cm) or 18 half size (6 x 6 cm) in 2 lines
Input Weight Data Stream	Data Bit = 8 Start Bit = 1 Parity = None
Input Weight Data Baud Rate	1200,2400,4800,9600,19200,38400
Clock and Calendar	Supported by Build-in Clock
Time Format	24-Hour
Date Format	3 x User Selectable Formats
Enclosure Dimension and Net Weight	70 (W) x 15.8 (H) x 4.3 (D)cm 2.5kg
Power Supply Requirements	By External Dual Voltage Output Power Adaptor: - 5V, 1.5A, 7.5 ~ 12V, 0.5A
Power Consumption	5V = 1A 7.5~12V = 200mA
Operation Environment	-10 ~ 40°C. Non-condensed. R.H. ≤ 85%

Specifications subject to change prior to notice

4. Connection Layout and Description

4.1 On RD-DOT



1. SOFTWARE ANTENNA OUTLET (IF INSTALLED)

This antenna is used to receive signal from wireless remote controller.

2. COMPUTER PORT

Connect computer RS232 communication port. This port is to connect with a computer which is used to program /setup the RD-DOT.

3. 3-PIN DC INPUT JACK

The DC output of the external dual voltage output power adaptor is plugged in here.

4. DB9 Port for Incoming Weight Signal

- a. In case of hard wire connection: - Plug in the RS485/RS232 data output from external signal device here,
- b. In case of a wireless data antenna port: - Plug in/screw/lock the external wireless communication module here.

4.2 On Wireless Remote Controller or Cable Remote Controller ON PANEL OF WIRELESS REMOTE CONTROLLER

KEY #	Key Function	
	During Operation	During Setting
1	No assignment	Quit without saving
2	No assignment	Enter, save and quit
3	Shift between full or half size display	Move cursor to one place right
4	Select next info to be displayed on lower display on RD-DOT	Decrease value by one / move to the previous setting function
5	Select next info to be displayed on upper display on RD-DOT	Increase value by one / move to the next setting function
6	Trigger Internal Function Manual	

5. Getting Started

The RD-DOT has no on/off switch. Before working with it or making any connections, make sure that the power adaptor is disconnected from the power outlet.

5.1 Connection with External Signal Device (By Cable Connection)

1. Connect the RD-DOT to the external signal device with a proper signal cable.
2. Refer to below **TABLE 1** for pin assignment on both RD-DOT and external signal device. Wrong pin connection may cause un-recoverable damages to the RD-DOT and/or to the external signal device,
3. Attach/lock firmly both ends of the signal cable to the RD-DOT and external signal device.

Table 1: - Db9 Port for Incoming Signal Pin Assignment

5-PIN CONNECTOR ON RD-DOT	WEIGHING INSTRUMENT / SIGNAL GENERATING DEVICE	
	RS232	RS485
1	DC +5V	
2(RXD)	TXD	
3(TXD)	RXD	
5(GROUND)	GROUND	
7		A
8		B
9	DC +5V	

5.2 Connection with External Signal Device (By Wireless Connection)

To ensure smooth, accurate and maximum transmission distance between RD-DOT and external signal device, plug in/screw/lock the external wireless communication module here.

The external wireless communication module usually comes in one pair and the frequency is set to the same.

In case a different frequency is required, refer to **FIGURE A** and **TABLE 2** for frequency setting of RD-DOT wireless module.

Figure A: - Frequency Setting of Wireless Module

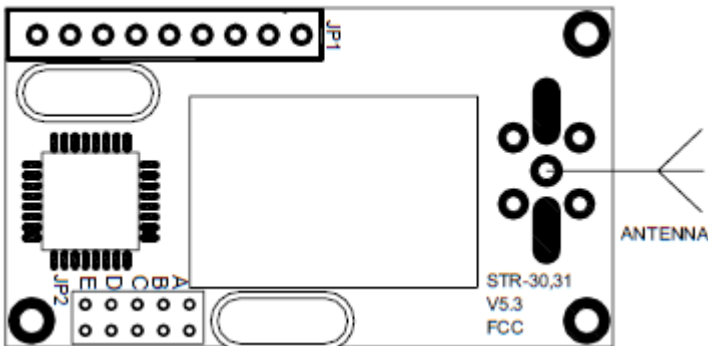


Table 2: - Jumper / Frequency Settings on Wireless Module

JUMPER SETTING OF POSITION C, B & A (NOTE A)	CHANNEL NO	FREQUENCY (MHz)
0,0,0	0	430.2000
0,0,1	1	431.4288
0,1,0	2	429.2500
0,1,1	3	428.1250
1,0,0	4	437.2500
1,0,1	5	432.5000
1,1,0	6	436.2500
1,1,1	7	433.9260

Note A: -

- 0 = Open circuit (no jumper)
- 1 = Short circuit (with jumper)

5.3 Connection with Wireless Remote Controller

If a wireless remote controller is order, a soft antenna will come out from the antenna outlet. Do not cut, remove, shorten or obstruct the soft.

When using the wireless remote controller, always extend the build-in antenna to the maximum.

5.4 Connection with Computer

A 3-meter signal cable is enclosed. Attach/lock/screw both ends of the computer signal cable to the computer port on RD-DOT and the DB9 RS232 communication port on computer. To connect the RD-DOT to an USB port of computer, a serial to USB converter is required. Contact your dealer for more information.

Baud rate and data stream between RD-DOT and computer as below: -

- Baud Rate = 9600
- Data Bit = 8
- Parity = No

- Stop Bit =1

If longer cable¹ or DB-25 connector is used on the computer end, refer to below **TABLE 3** for pin assignment.

Table 3: - Pin Assignment of Computer Port on RD-DOT

COMPUTER PORT ON RD-DOT	COMPUTER COM	
	(DB9)	(DB25)
2 = RXD	3 = TXD	3 = TXD
3 = TXD	2 = RXD	2 = RXD
5 = GND	5 = GND	7 = GND

5.5 Connection with External Power Adaptor

A dual voltage external power adaptor is enclosed. Attach/lock/screw this output plug of the power adaptor to the 3-pin Dc input jack firmly. Pin assignment of the 3-pin connector on RD-DOT as below: -

- Pin 1 = + 5V
- Pin 2 = GROUND
- Pin 3 = +7.5~12V

5.6 Power On

After all necessary connections as described on **5.1 ~ 5.5** are completed, RD-DOT is ready for operation.

Following the below procedures for power on sequence: -

- Power on weighing instrument,
- Power on computer (if connected),
- Power on RD-DOT. The RD-DOT has no on/off switch. To power on, simply plug in the power adaptor to power outlet.

After the power adaptor is plugged to the power outlet, RD-DOT will: -

- Display working mode and software version number. Working mode for remote display is = **REMOTE**,

¹ Maximum transmission distance of RS232 is about 15 meter (50 feet).

- e. Display protocol selected,
- f. RD-DOT will then start detecting the correct baud rate transmitted by external signal device.
- g. Display baud rate (bps) detected, e.g. 9600bps.
- h. Display info or text message selected.

6. Software Driver

Configuration parameters, operation commands and text messages contents can be done and uploaded to RD-DOT via through the **RD DOT Remote Display Driver**. Please contact your dealer for more information.

6.1 Setup Procedures (Windows 2000 & XP)

- a. Collect the driver from your dealer.
- b. Unzip this file to designated folder, for example C:\RDdriver
- c. Click **RD Driver** after unzipped.
- d. Then click **setup.exe**
- e. Follow the instructions on screen to complete Setup.
- f. To run the driver after setup, click **All Programs → RD DOT Display Driver → RD DOT Remote Display Driver**

6.2 Setup Procedures (Windows Vista)

- a. Collect the driver from your dealer.
- b. Unzip this file to a designated folder, for example C:\RDdriver
- c. Click **RD Driver** after unzipped
- d. The click **RD DOT Remote Display Driver.CAB**
- e. Unzip this file to a designated folder, for example C:\RDdriver\Vista
- f. To run the driver after unzipping, click **RD DOT Remote Display Driver.exe**

6.3 Setting up Connection between Computer and RD-DOT

1	Comport	1	Open Comports	2
4	Baudrate (Setting)	9600	Close ComPort	3
5	Protocol	3	Set	6

- a. **Comport:** - Select comport number through which the computer communicates with RD-DOT.
- b. **Open Comport:** - Click here to open comport.
- c. **Close Comport:** - Click here to close comport.
- d. **Baud rate (Setting):** - Baud rate between computer and RD-DOT is fixed at 9600.
- e. **Protocol:** - Refer **TABLE 4** below for more information about protocol parameter.
- f. **Set:** - Click here to send the specific individual parameter to RD-DOT immediately.

6.4 Setting up Connection between Weighing Equipment and RD-DOT

7	Baudrate (Weight)	9600	▼	Set
8	Date Mode	0. YY-MM-DD	▼	Set
9	Speed1	3	▼	Set
10	Speed2	3	▼	Set

- a. **Baud rate (Weight):** - Select baud rate between RD-DOT and weighing equipment.
- b. **Date Mode:** - Select preferred data mode here
- c. **Speed 1:** - Select the moving speed of full size texts or upper half size
 - 0 = Slowest, 3 second per letter
 - 1 = Slow, 2 second per letter
 - 2 = Normal, 1 second per letter
 - 3 = Fastest, 0.5 second per letter
- d. **Speed 2:** - Select the moving speed lower half size = if more than 9 characters.
 - 0 = Slowest, 3 second per letter
 - 1 = Slow, 2 second per letter
 - 2 = Normal, 1 second per letter
 - 3 = Fastest, 0.5 second per letter

Note: - To send the specific individual parameter to RD-DOT immediately, click 6

6.5 Setting up Text Messages

TEXT 1

TEXT 2

TEXT 19

TEXT 20

- Text Box 1~20:** - Enter text message #1~20 here. Maximum 35 characters can be entered per each text message. RD-DOT will display all text messages with more than 9 characters in sliding format.
- Send Text 1~20:** - Click here to send the specific individual text message to RD-DOT immediately.
- Scroll Mode:** - Select scroll mode = Auto or Manual here.

13 — Scroll Mode 1-Auto

14 — Date 09-12-28

15 — Time 16:56:35

6

- Date:** - Current date is displayed here.
- Time:** - Current time is displayed here.

Note: - To send the specific individual parameter to RD-DOT immediately, click 6

6.6 Uploading Settings and Text Messages to RD-DOT

16 — Upload Settings/Text

Upload Setting/Text: - Click here to upload all settings entered through 6.4 and 6.5.

6.7 Setting up Auto Display Sequence

	18 Single/Double	19 INFO 1	20 INFO 2	21 Display Delay (1~199 Sec)	22 Next/End
Seq #01					Next
Seq #02					Next
Seq #09					Next
Seq #10					End

- Display Sequence #01~10:** - When Scroll Mode is = Auto, select the info information to be displayed here. RD-DOT will then display the information according to priority and style set here
- Single/Double:** - Select Single (full size text) or double line info to be displayed.
- Info 1:** - Select content of full size info or upper line info to be displayed.
- Info 2:** - Select content of lower line info to be displayed.
- Display Delay:** - Select time display time duration
- Next/End:** - To program the next display sequence, select next. Or select end to end display sequence here.

6.8 Uploading Display Sequence Settings to RD-DOT



Upload Sequence: - Click here to upload all auto display sequence settings entered through 6.7.

7. Initial Setup² Via Remote Controller

7.1 Key Function during Settings

The RD-DOT can be setup via wireless / cable remote controller.

- To start initial setup, press **KEY #6**,
- Make use of **KEY #3~5** for setting. Refer to **4.2** for key function during setting. Parameters available for each internal function are listed on **TABLE 4**,
- To quit without saving, press **KEY #1**,
- To save and quit, press **KEY #2**.

7.2 Command and Parameter Settings

Table 4: - Command Table via Wireless/Cable Remote Controller

Command	Parameters and Description (Bold letters = parameters available)
TIME	Set time value in format HHMMSS. RD-DOT works in 24-hours format.
DATE	DATE MODE Set data format. 3 date formats are available: - <ul style="list-style-type: none">● YY-MM-DD (default),● MM-DD-YY,● DD-MM-YY After date mode is selected, press KEY #2 to confirm and go to SET DATE manual. SET DATE Set data value.
PROTOCOL	To set weighing instrument /signal generating device and/or data stream type. <ul style="list-style-type: none">● 0 = Weighing products produced by Shanghai Yaohua Weighing System Co., Ltd.,● 1 = Weighing products produced by Shanghai Caisun Electronic Co., Ltd.,

² Wireless and cable remote controller does not support text message editing

	<ul style="list-style-type: none"> ● 2 (default) =Fidelity Measurement FM18 indicator / Weighing products produced by Handfree Company /All other date formats contains of ASCII code 0D (CR) and 0A (LF) inside data stream, ● 3 = FIDELITY MEASUREMENT M918 indicator / All other date formats contains of ASCII code 02 (STX) and 03(ETX) inside data stream. <p>For example, to work with Fidelity Measurement FM18 indicator, select PROTOCOL 2.</p>
SPEED 1	<p>To set the moving speed of full size texts (if more than 9 characters), or</p> <p>To set the moving speed of upper half size text message if more than 9 characters).</p> <p>4 parameters are available: -</p> <ul style="list-style-type: none"> ● 0 (Slowest, 3 second per letter)/Default ● 1 (Slow, 2 second per letter) ● 2 (Normal, 1 second per letter) ● 3 (Fastest, 0.5 second per letter) <p>For example, to set fastest moving speed, select SPEED 3.</p>
SPEED 2	<p>To set the moving speed of lower half size text message if more than 9 characters).</p> <p>4 parameters are available: -</p> <ul style="list-style-type: none"> ● 0 (Slowest, 3 second per letter)/Default ● 1 (Slow, 2 second per letter) ● 2 (Normal, 1 second per letter) ● 3 (Fastest, 0.5 second per letter) <p>For example, to set slowest moving speed, select SPEED 0.</p>
PROGRAM	<p>This is to select the way how the display information is controlled (e.g. instance control via remote controller or by pre-programmed)</p> <p>2 parameters are available: -</p>

	<ul style="list-style-type: none"> ● SCROLL MANUAL Info and the style of display are directly selected by remote controller manually by user. ● SCROLL AUTO Info and the style of display are presented according to the pre-programmed settings. This parameter supersedes all previous display settings. Refer to 6.3 for setup procedures.
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7.3 Scroll Auto Setup Procedures

- a. Press **KEY #6** to enter internal setting function,
- b. Press **KEY #5** until **PROGRAM** appears,
- c. Press **KEY #2**, RD-DOT displays **SCROLL MANUAL** or **SCROLL AUTO**,
- d. Press **KEY #5** to shift between **SCROLL MANUAL** or **SCROLL AUTO**, then press **KEY #2** to confirm,
 - For direct remote-control display info, select **SCROLL MANUAL**; to select automatic pre-programmed info display,
 - Select **SCROLL AUTO**. If **SCROLL AUTO** is selected, follow the below steps for pre-program setting.
- e. RD-DOT displays **PROGRAM X** (**X** is the program number. 1 = the first info to be displayed),
- f. Wait until **DOUBLE LINE** or **SINGLE LINE** appears,
- g. Press **KEY #5** to shift between **DOUBLE LINE** or **SINGLE LINE**, then press **KEY #2** to confirm,
 - For half size text, select **DOUBLE LINE**,
 - For full size text display, select **SINGLE LINE**,
- h. RD-DOT displays **LINE 1**. **LINE 1** means full size info or the upper half size info. Select info to be displayed by **KEY #4** or **KEY #5**, and press **KEY #2** to confirm,
- i. (If **DOUBLE LINE** is selected), RD-DOT displays **LINE 2**. **LINE 2** means lower half size info. Select info to be displayed by **KEY #4** or **KEY #5**, and press **KEY #2** to confirm,
- j. RD-DOT displays **DELAY** and 3-digit display time in seconds. This is the time period when the info will be displayed before the next pre-programmed info will be displayed.
- k. Make use of **KEY #3**, **#4** and **#5** to enter display time of this PROGRAM number. Delay range is = 1~200 seconds. Press **KEY #2** to confirm.
- l. Repeat **e** to **k** for the rest of the program number. Maximum 19 programs

can be set.

m. Once all requested program numbers are done, Press **Key #1** to quit,

Notes: -

1. All info of TEXT 1 to TEXT 20 has to be pre-entered through computer.
2. Corrections made by backspace may cause display error on RD-DOT. If it is the case, re-type message without any corrections.
3. RD-DOT will response with an error code if a command is not accepted or refused. Refer to **ERROR CODES TABLE** for more information.

8. Manual Operation Via Remote Controller

8.1 To Shift between Full Size and Half Size Message/Info

Press **KEY #3** to shift between full size and half size text message/info.

8.2 To Select Text Message/Info to be displayed in Full Size or on Upper Display

Press **KEY #5** to shift to the next text message / info to be displayed in full size or on upper display.

When scrolling among text message numbers, RD-DOT will skip those empty (not edited) text message numbers and go to the next edited message text number or info.

8.3 To Select Upper Half Size Text Message/Info to be displayed on Lower Display

Press **KEY #4** to shift to the next text message / info to be displayed in full size or on lower display.

When scrolling among text message numbers, RD-DOT will skip those empty (not edited) text message numbers and go to the next edited message text number or info.



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