

# HRC-24-7R Cable Assembly Manual

Version A

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## REVISION HISTORY

Revision	Date	Description
1.0	11/15/2012	Initial version
1.1	06/17/2021	Updated to new template
A	06/13/2023	Formal Release

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## GLOSSARY

BIS .....Bureau of Industry and Security

DC.....direct current

DTE .....data terminal equipment

EAR .....Export Administration Regulations

GND.....Ground

OFAC.....Office of Foreign Asset Controls

VDC.....volts (direct current)

# 1 PURPOSE

Model HRC-24-7R is a DB9-to-DB25 cable assembly designed to work with any of the NAL Research A3LA-R modem series. The HRC-24-7R allows serial connection between a Data Terminal Equipment (DTE) (DB9) and an A3LA-R (DB25). **Table 1** and **Table 2** show the pin assignments. Power to the modem is applied through two (2) bare wires.

**Table 1: Connections Between DB-9 and DB-25 Connectors**

SIGNAL NAME	DB-9 Connector	DB-25 Connector
DCD	1	10
RX	2	13
TX	3	9
DTR	4	19
SIG GND	5	23
DSR	6	21
RTS	7	8
CTS	8	22
RI	9	7

**Table 2: Pin Assignments of the DB25 Connector**

Pin #	Signal	I/O	Description	Interface
1	EXT_ON_OFF	I	Power on/off control input	DC Power
2	+12VDC	O	Output Voltage to Power the DPL Handset	DC Power
3	EXT_GND	--	External GND input	DC Power
4	EXT_B+	I	External 4.0 V – 5.5 V or 6.0 V – 32.0 V	DC Power
5	SPKR_AUD	O	Speaker audio output	Analog Audio

**Table 2: Pin Assignments of the DB25 Connector**

Pin #	Signal	I/O	Description	Interface
6	DA_TX	O	PCM digital audio output	Digital Audio
7	RI	O	RS232 Ring Indicate	RS232 Data
8	RTS	I	RS232 Request To Send	RS232 Data
9	TX	I	RS232 Transmit Data (Input)	RS232 Data
10	DCD	O	RS232 Data Carrier Detect	RS232 Data
11	DA_FS	O	PCM digital audio frame sync output	Digital Audio
12	DA_CLK	O	PCM digital 2.048 MHz audio clock output	Digital Audio
13	RX	O	RS232 Receive Data (Output)	RS232 Data
14	SIGNAL GND	--	Signal ground, 0V signal reference and return	GND
15	MIC_AUD	I	Microphone audio input	Analog Audio
16	EXT_B+	I	External 4.0 V – 5.5 V or 6.0 V – 32.0 V	DC Power
17	EXT_GND	--	External GND input	DC Power
18	DPL_TX	O	Digital Peripheral Link (DPL) data output	DPL UART
19	DTR	I	RS232 Data Terminal Ready	RS232 Data
20	DPL_RX	I	Digital Peripheral Link (DPL) data input	DPL UART
21	DSR	O	RS232 Data Set Ready	RS232 Data
22	CTS	O	RS232 Clear To Send	RS232 Data
23	SIGNAL GND	--	Signal ground, 0 V signal reference and return	GND
24	DA_RX	I	PCM digital audio input	Digital Audio
25	SIGNAL GND	--	Signal ground, 0 V signal reference and return	GND

## 2 DESIGN SPECIFICATIONS

### 2.1 GENERAL SPECIFICATIONS

Dimensions of backshell: .....2.20" L x 1.11" W x 0.62" D

Weight of backshell/DB25: .....0.10 pound

### 2.2 PHYSICAL CONNECTORS

Connectors: .....DB-25 for modem attachment

DB-9 for data terminal equipment (DTE)  
attachment

Two bared wires for 4.0 V–5.5 V or 6.0 V–  
32.0 V (A3LA-R must be set to the proper  
voltage setting)

## 3 TECHNICAL SUPPORT

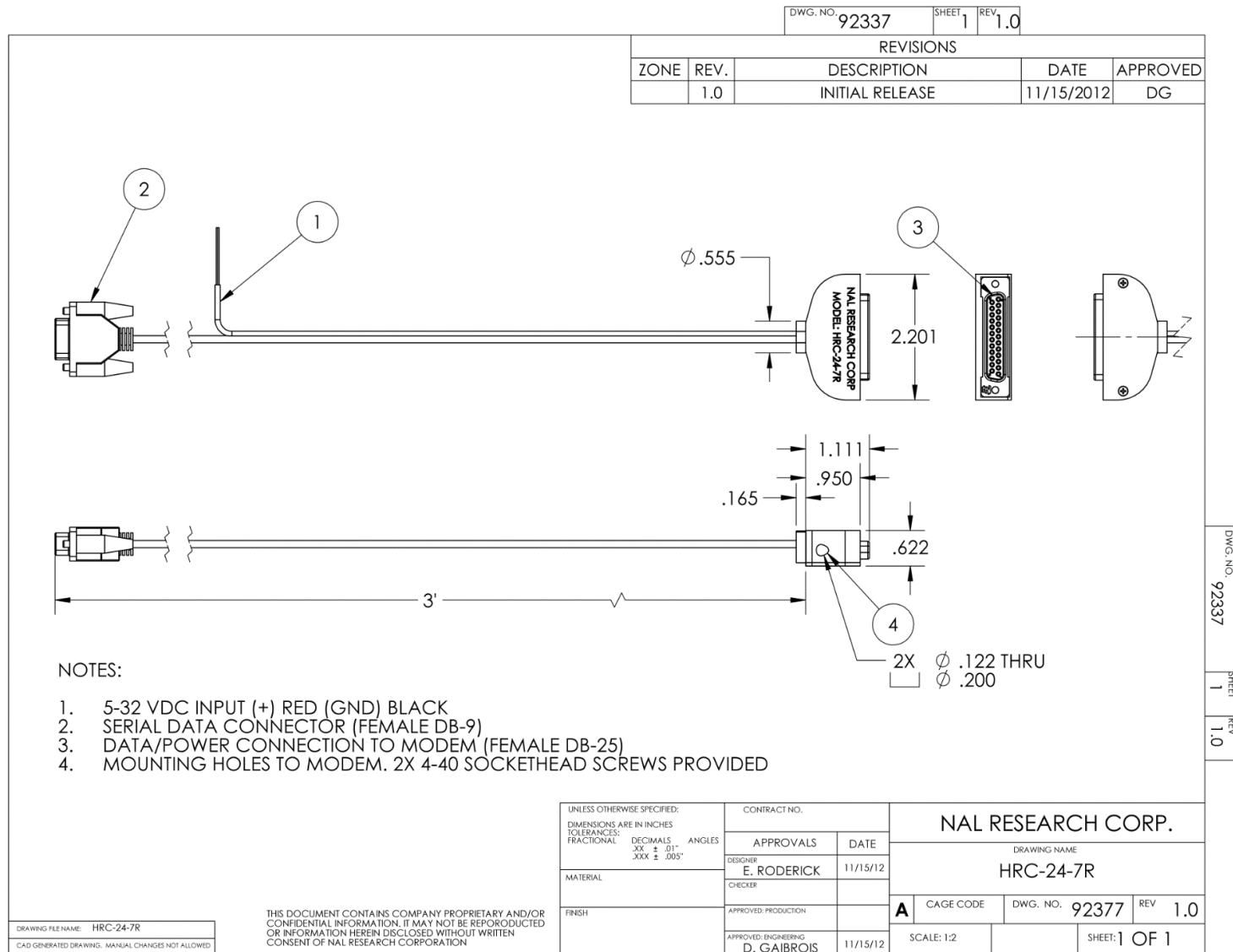
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Technical documents are also available to download on NAL Research's website  
[www.nalresearch.com](http://www.nalresearch.com).

# 4 MECHANICAL DRAWING



**Figure 1: HRC-24-7R Mechanical Drawing**