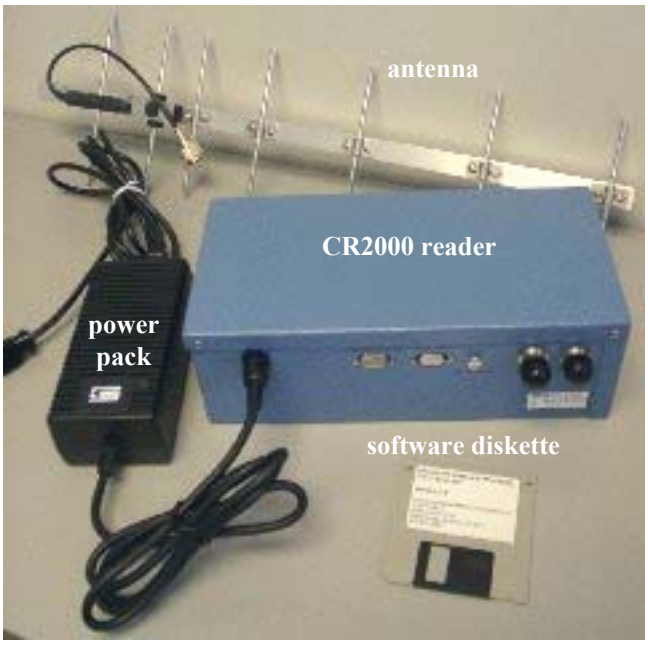
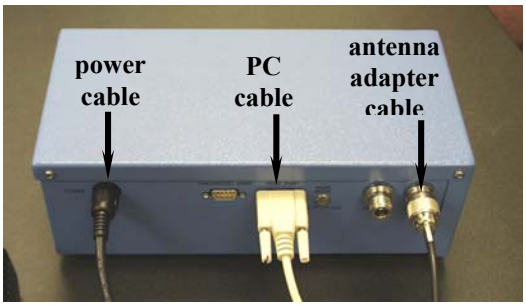
CR2000 - Reader Kit



CR2000 - Reader Kit Packing List

Part Number	Description
801075-001	CR2000 Compact Reader
318993-009	DC Power Pack, 110Vac input, output 5V/3A, 15V/1.5A, -15V/0.3A, Skynet #SNP-PA54
318145-177	CR2000 PC Software on Diskette
801076-001	Antenna Assembly

CR2000 Reader - Connections



CR2000 - Installation Tools

Your tool kit should include (but is not limited to)…

- N-type connector crimp tool
- screwdrivers: flat blade, Philips blade
- SAE Socket set
- utility knife, wire cutter, wire stripper

CR2000- Installation Items

The kit of reader components described at left does not include the following required items…

1 PC cable, RS232 (DTE-DCE), 12 feet (see Fig 1)
A/R antenna mount hardware: bracket(s), clamp(s), mast, etc.
100 feet (or less A/R) of RG213U cable
2.5 feet of RG58U cable
1 N-male connector for RG213U cable
1 N-female connector for RG213U cable
1 N-male connector for RG58U cable
1 N-female connector for RG58U cable
1 each of fixed attenuators: 1, 2, 3, 4, 5, 6, and 7 dB
A/R heat shrink tubing, electrical tape, cable ties and clamps

NOTE: During system installation, the contractor determines the fixed RF attenuation level required.

CR2000- Installation Overview

- The antenna is installed within the distance/angular limits of the "pick-up point" as indicated in Table 1 on the back page
- The reader, power pack, antenna adapter cable and "total RF attenuation" components are installed at a location inside the building (see Figure 1 on the back page) that is (all of)…
  - within 6 feet of a 110Vac power main drop
  - within 12 feet (4 meters) of the host computer
  - within 100 feet of the antenna mounting location outside the building
- All system connections are completed as indicated in the CR2000 - Installation Steps listed on the back page.
- The CR2000 PC application software is transferred from the diskette to the host computer and is running.
- The total RF attenuation value is determined by varying the configuration of the available fixed attenuators.

NOTE: Where necessary, Mark IV Industries Ltd. I.V.H.S. personnel may be required to "fine tune" the system RF attenuation parameters.

Document Revision Record

Rev	Date	ECN	Approved
A	18-Jan-01	Preliminary	

CR2000 - Antenna mounting

The antenna will be mounted over-head at a height of Ha ft with horizontal polarization where Ha is measured from the highest part of the antenna. Determine the distance Do (in ft) between the "pick-up point" and the antenna mast, and use it to determine the antenna tilt down angle α° in the in-lane direction (H Plane), using the following table.

Antenna Height (Ha) [ft]	Pick-up Point (Do) * [ft]	Antenna Tilt Angle (α) [Deg]	Beam Center ** [ft]
12	5 to 7	15	3
	7 to 9	18	4
12.5	5 to 7	15	3
	7 to 9	18	4
13	6 to 8	15	3.5
	8 to 10	18	4.5
13.5	7 to 9	15	4
	9 to 10	18	4.5

* Distance referred to the antenna mast.
** Based on semi-empirical data.

Note: User must maintain a separation distance of 23cm from the antenna. The antenna has gain of 6 db.

CR2000 - Installation Steps

Connect the antenna with the reader via RF feedline and RF attenuator(s) and antenna adapter cable.

1) Disconnect the power main input to the power supply.
2) Connect the Power supply output to the CR2000 reader.
3) Connect the PC port COM1 to the reader host port using the provided straight through RS-232 cable.
4) Connect the RF cable adapter (RG58 short cable) to the reader RF port (Type N connector).
5) Connect the RF feedline to the RF cable adapter via the fixed attenuator(s) referenced in step 9. Install a Type-N Male connector at the end of the feedline.
6) Route the RF feedline through the wall. At the feedline antenna end, slip 6" of heatshrink tubing on the cable. Install a Type-N female connector at the end of the feedline. Make the connection with the antenna.
7) Reconnect the power main input to the power supply.
8) Execute the CR2000 PC application software as referenced in document A316000-743.
9) Determine the "total RF attenuation" value by varying the configuration of the available fixed attenuator value(s).
10) After the system has been fully tested OK then heat shrink the tubing (in step 6) over the antenna connector to make it water tight.

Figure 1 - Installation Diagram