User manual for R2020 Wired display with 7” high digits.

The display includes an internal battery pack with integrated battery charger, and a DB-9 data port for connecting to a Jugs radar gun.

Whats Included

The following items are included with each R2020 radar gun display.

- Display with 7 inch high digits can display speeds from 0 to 199.
- Internal battery pack with integrated battery charger, for portable operation up to 7 hours.
- Wall transformer to charge the battery inside the display

Operation

When setting up the display and radar gun, follow these steps.

- Set the display in the field for easy viewing, with the radar gun aimed at the object who’s speed will be measured, as close to head on as possible.
- Push and hold the ON button on the rear of the display for at least 2 seconds. The unit should show a test pattern when turning on.
- Inspect the connectors on the radar gun and display to insure that no pins are bent or broken.
- Attach the Jugs radar gun cable to the DB-9 (9 pin) connector on the display. Be very careful to not bend the pins when making the connection.

- Tighten the 2 thumb screws. This will keep the connector securely attached to the display
- Attach the other end of the cable to the data port on the radar gun.

- Press the radar gun Power button, the gun should come on and show “C” in its display. The R2020 should show “00” indicating it got data from the gun.
- To test the gun, thump the tuning fork supplied with the radar gun and place it in front of the radar gun. The display should show the speed value represented by the tuning fork on both the radar gun display and on the R2020 display.
- You are now ready to use the radar gun system.
- When finished for the day, re-connect the display to the wall transformer and connect the wall transformer to AC power, to recharge and maintain the battery when not in use.

Storage

When the display is not used for extended periods of time, the internal batteries will slowly discharge over time.

Storage (Continued)

- It is very important to not permit the Gell Cell batteries used inside these displays to completely discharge. The battery life will be shortened significantly if they are allowed to discharge too much.

- When the displays are NOT being used, Push and Hold the OFF button to turn the display off, then connect the display to the wall transformer and plug the transformer into AC power. The battery charger is an intelligent one that maintains a trickle charge to keep the batteries at full charge, but shuts off when necessary to prevent any possibility of over charging.

- Your display will always be ready for use and should be able to run all day on a single charge.

Display Specifications

- Controls: Two buttons. One button is used to turn the power on and also to generate a test pattern on the display. The other button is used to turn the display off.

- Indicators: LED indicators to indicate Power On and charging status.

- DB-9 RS-232 Connector: RS-232 serial data input connector so the display can be used as a wired display.

- TX-422 Connector: RS-422 serial data connector to transmit serial data to other displays or to a computer.

- RX-422 Connector: RS-422 serial data connector to receive serial data from another display or radar gun with RS-422 port.

- Data rate: 1,200 baud, 8 bits, No parity,1 stop bit, on the serial port.

- Battery: Dual 6 volt, 7AH gel cell batteries.

- Power requirements: 12-15VAC or 15-18VDC input.

- Current consumption: Up to 1.7A with all segments on and charging depleted batteries. Minimum current 80mA with power on, all segments off and fully charged batteries. Has a quiescent current of 125uA with power off.

- Dimensions: 10.5”H x 13.5”L x 2.5”D. Overall including feet and handle 12.0”H x 13.5”L x 2.5”D.

- Weight of display: 10.25Lbs.

Accessories (sold separately)

- Jugs R2050 Radar Gun.
- Jugs R2015 Radar Gun data cable.
- Jugs R2040 Wall Transformer.

The R2020 includes a DB9 connector for connecting to a Jugs radar gun.

Whats Included

The following items are included with each radar gun display.

- Display with 7 inch high digits can display speeds from 0 to 199.
- Includes an integrated battery charger and connections for the radar gun. xxx
- Wall transformer to operate the display.
- Optional Battery pack with integrated battery charger for portable use. xxx

Operation

The R2020 is easy to use. .

- Set the R2020 display in the field where it is convenient for easy viewing. It is best to have the radar gun in a line of sight between the display and the radar gun.
- Attach the radar gun cable to the DB9 (9 pin connector) on the rear of the unit. Be very careful to not bend the pins when making the connection.
- Tighten the 2 thumb screws on the DB9 connector. This will keep the connector securely attached to the back of the display.
- Connect the other end of the cable to the Radar Gun.
- Plug the XXXXX into either a battery pack or use a wall adapter to connect to AC power. xxx
- Press and hold the ON button for 2-3 seconds until the display lights up.
- The display should show a test pattern when turning on.
- The Tap the ON button on the radar gun. The display on the radar gun should light up.
- Test the connection. Thump the tuning fork supplied with the radar gun and place it in front of the radar gun. The display should show the speed value represented by the tuning fork on both the radar gun and on the R2020 display.
- You are now ready for the game or other activity.
- When finished for the day, re-connect the battery pack to AC power when not in use.

Storage

When the display is not used for extended periods of time, the internal batteries will slowly discharge over time.

- It is very important to not permit the AGM or Gell Cell batteries used in the external battery pack to dischage below 11 volts. Over discharging can ruin the batteries.
- When the displays are NOT being used, it is best to keep both the display and the battery pack plugged into the charger. The batteries cannot be over charged. The battery charger is an intelligent battery charger that maintains a trickle charge to keep the batteries at full charge, but shuts off when necessary to prevent any possibility of over charging.
- Your display will always be ready for use and should be able to run all day on a single charge.

Display Specifications

- Controls: Two buttons. One button is used to turn the power on and also to generate a test pattern on the display. The other button is used to turn the display off.
- Indicators: LED indicators to indicate charging and charge status.
- RS-232 Connector: RS-232 serial data connector so the display can be used as a wired display.
- TX-422 Connector: RS-422 serial data connector to transmit serial data to other displays or to a computer.
- RX-422 Connector: RS-422 serial data connector receive serial data from another display or radar gun with RS-422 port.
- Data rate: 1,200 baud on the serial port when used as a wired display.

- Battery: Dual 6 volt, 7AH gell cell batteries.
- Power requirements: 12-15VAC input or 15-18VDC input.
- Current consumption: Up to 2.75A with all segments on. Minimum current 80mA with power on and all segments off. Consumes a quiescent current of 125uA with power off.
- Dimensions: 30” x 36” x 3”. Overall dimensions including feet 32” x 36” x 3”.
- Weight of display: 1LB.

Battery Pack Specifications

- Indicators: LED indicators to indicate charging and charge status.
- RS-232 Connector: RS-232 serial data connector so the display can be used as a wired display.
- TX-422 Connector: RS-422 serial data connector to transmit serial data to other displays or to a computer.
- RX-422 Connector: RS-422 serial data connector receive serial data from another display or radar gun with RS-422 port. (Not on all models)
- Data rate: 1,200 baud on the serial port between the radar gun and the battery pack / wireless transmitter.
- Battery: 12 volt, 4AH gell cell battery.
- Power requirements: 12-15VAC input or 15-18VDC input.
- Current consumption: Up to 0.85A when the radar gun is taking a speed measurement. Consumes a quiescent current of 50mA with power on. Consumes a quiescent current of 1uA with power off.
- Dimensions: 6” x 6” x 6”.
- Weight of display: 1LB.

Troubleshooting

- Inspect the connector on the radar gun to insure that no pins are bent or broken.
-