



# ROTHENBUHLER ENGINEERING

HOME OF THE *Talkie Tooter!*

## 1670 Remote Firing Device

*Department of Commerce  
license may be required*



1670 Controller



1670 Dual Output Remote – 1 Watt

**THE 1670 REMOTE FIRING DEVICE (RFD)** is an intelligent and discrete 2-way radio controlled remote blast initiation system. The radio system's signal is digitally encoded (addressed). The latest microprocessor and message encoding/validation technology has been combined to provide a **SAFE, RELIABLE** and **ACCURATE** Remote Firing Device. Rothenbuhler Engineering engineered this system using over 15 years of military and commercial RFD experience.

The **1670 RFD** has the capability to initiate non-electric shock tube, as well as standard electric blasting caps. The system can be used repeatedly throughout an operation and will give an "answer back" or confirmed status of all **or** any one of the Remotes. The Remotes can be held in the standby (not armed) mode for up to 12 hours and still maintain the energy to initiate the shot. The 1670 RFD includes redundant internal safety circuitry and a timed automatic disarming feature. If the Remotes do not receive a properly addressed firing signal within 2 minutes of being armed, the system will automatically return to the disarmed state.

**RUGGED** – All system cases are watertight and have a vent for pressure equalization. The electronics have been specially mounted to help prevent damage from shock and vibration from blasting, transportation and mishandling.

**SYSTEM VERSATILITY** – The 1670 RFD has a versatility and reliability not before seen in initiation systems. The unique design of the Rothenbuhler RFD offers the versatility of commanding 1 to 8 Remotes with a single Controller. The Remotes can be individually selected, armed, fired and interrogated for status via the keypad on the Controller.

**NON-ELECTRIC** – this Remote offers greater power for better range using shock tube.

### **Highlights:**

- Up to 8 Remotes
- Electric and Shock Tube Outputs
- Surface Mines OR Underground via Leaky Feeder
- Sequential Firing
- Two-Way Status Communication
- Up to 8 km Range
- Unique System ID Codes
- Safety Poll<sup>®</sup> Communications Check
- Electronic Keys
- External Programming and Option Port
- Remote Battery Status Check
- 4 Hour Battery Re-charge
- Emergency shutdown
- Tag Board Check Compatible
- Vibration & Shock Mounted Electronics
- Weather Proof Cases



1670 Non-Electric Remote – 5 Watt

# MODEL 1670 REMOTE FIRING DEVICE

## STANDARD FEATURES & FUNCTIONS

### ALL UNITS

Low battery & unit status indications  
 EMI shielded, shock mounted, solid state circuitry  
 Watertight cases  
 Long-life rechargeable NiMH batteries – 4 hr. charge  
 Programmable for leaky feeder & repeaters

### SYSTEM BASICS

Controller, 1 to 8 Remotes, Antennas,  
 Battery chargers, Shock Tube tips  
 tube  
 Electronic Keys

### CONTROLLER

Interactive keypad  
 Polls for and displays status of all Remotes  
 Transmit and confirmation indicators  
 Controls up to 8 Remotes

### REMOTE

Spring loaded terminal posts  
 0 Voltage on posts until "Fire"  
 Uses replaceable 500 shot spark tip & standard 1/8" shock

**CERTIFICATIONS:**            **US-Federal Communications Commission (FCC)**  
    **CANADA-Department of Communications (DOC)**

**SAFETY CERTIFICATIONS:**    **WORK SAFE BC-British Columbia, Canada**  
    **Department of Industry and Resources, Western Australia**

### GENERAL

Carrier Frequency    VHF – 148 to 174 MHz  
                                  UHF – 450 to 470 MHz  
 FCC & IC                Certified

Operating Temperature -30°C to +60°C\*\*  
                                  -22°F to +140°F

\*\*Optimum battery range 0°C to 50°C

### CONTROLLER

Frequency Stability	± 1.5 ppm
Modulation	11K3F1D (FSK)
Transmit Power	1 – 5 Watts
Operating Voltage	12 VDC
Transmission Range	5 – 8 km**
Receiver Sensitivity	12 dB SINAD:<0.45uV
Size (in)	10W x 12D x 4.5H
Size (cm)	25.5W x 30.5D x 11.5H
Weight	6.5 lbs.
Weight	3.0 kg
Case	Waterproof Pelican 1200
Color	Yellow
Battery Pack	Rechargeable NiMH
Battery Life	
Standby	10-12 hours
Complete Recharge	4 hours
Current Draw	
Standby	135 mA
Transmitting	1 – 2.5 Amps

### REMOTE

Frequency Stability	± 1.5 ppm
Modulation	11K3F1D (FSK)
Transmit Power	1 – 5 Watts
Operating Voltage	12 VDC
Transmission Range	1 – 5 miles**
Receiver Sensitivity	12 dB SINAD:<0.45uV
Size (in)	10W x 12D x 4.5H
Size (cm)	25.5W x 30.5D x 11.5H
Weight	7.25 lbs.
Weight	3.3 kg
Case	Waterproof Pelican 1200
Color	Orange
Battery Pack	Rechargeable NiMH
Battery Life	
Standby	10-12 hours
Complete Recharge	4 hours
Current Draw	
Standby	125 mA
Transmitting	1 – 2.5 Amps
Fire Output (Electric)	27 Volts (1.2 joules)
Fire Output (Non-electric)	2.5 kV (0.625 joules)

### BATTERY CHARGER

100-240V / 47-63Hz auto switching  
 Max. current draw 12VDC, 2.1A  
 Typical charge time 3-4 hours

\*\* *Line-of-sight. Typical transmission range based on power level, frequency, terrain, and local interference.*

### WARRANTY

The 1670 Remote Firing Device is guaranteed for 2 years (batteries - 1 year, spark tips excluded) against defects in workmanship and materials. If the equipment should fail during this period, we will repair it at our factory or at the nearest authorized service facility. Warranty service on this equipment must be performed only by an authorized dealer. Unauthorized service procedures or parts will void and cancel your warranty, and may cause radio equipment to fail, resulting in accidents and/or personal injury. This is a limited warranty and is given in place of legally implied warranties of merchantability and fitness for a particular purpose. Our liability is expressly limited to the cost of repair or replacement of the RFD under this guarantee, and does not extend to additional or consequential damages resulting from the operation of equipment.



## ROTHENBUHLER ENGINEERING®

P. O. Box 708, 524 Rhodes Road, Sedro Woolley, WA 98284 U.S.A.

Phone: 360-856-0836 Fax: 360-856-2183

[www.RothenbuhlerEng.com](http://www.RothenbuhlerEng.com)

2004 Rothenbuhler Engineering  
 All rights reserved  
 PRINTED IN U.S.A. 01/2014  
 1670 RFD Brochure.doc