

Parts & Supplier List  
W8ZR H.F. Receiver Multicontroller  
(rev. January 16, 2004)

- Notes: (1) Primary supplier is Mouser Electronics ( [www.mouser.com](http://www.mouser.com) ).  
(2) Secondary and alternate suppliers are Digikey Electronics, Allied Electronics, All Electronics, Jameco Electronics, Amidon Associates, and MiniCircuits.  
(3) Prices listed are catalog prices in effect in 2003.
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A. Main Circuit Board

C1-C10, C12-C17, C19, C23, C26-C30, C39,C40	0.1 $\mu$ F	Capacitor 50V Xicon Z5U epoxy dipped ceramic, qty 25 Mouser p/n 21RZ310 Price: \$.08/ea, \$.069/100, \$.053/500, \$.046/1000, \$.042/2K, \$.040/5K
C11, C18	22 $\mu$ F	Capacitor, 35V Nichicon USR1V220MDA electrolytic, radial, qty 2 Mouser p/n 647-USR1V220MDA Price: \$0.25/ea, \$0.24/10, \$0.11/100, \$0.08/500  (alternate generic) All Electronics p/n 10/35VR Price: \$0.10/1-9, \$0.08/10-99, \$0.05/100-999
C21	2.2 $\mu$ F	Capacitor, 10V Vishay/Sprague tantalum, qty 1 Mouser p/n 74-150D20V2.2 Price: \$1.38/ea, \$1.24/10, \$1.10/50, \$0.96/100
C22	1000 pF	Capacitor, 50V Xicon X7R epoxy dipped ceramic, qty 1 Mouser 21RX510 Price: \$.10/ea, \$0.084/100, \$0.065/500, \$0.056/1000
C25	3.3 $\mu$ F	Capacitor, 10V Vishay/Sprague tantalum, qty 1 Mouser p/n 74-150D15V3.3 Price: \$1.38/ea, \$1.24/10, \$1.10/50, \$0.96/100
C20, C24	.01 $\mu$ F	Capacitor, 50V Xicon X7R epoxy dipped ceramic, qty 2 Mouser p/n 21RX410 Price: \$0.11/ea, \$0.091/100, \$0.07/500, \$0.061/1000
C31, C32	.01 $\mu$ F	Capacitor, Vishay Cera-Mite, 250V AC line-rated, ceramic, qty 2 Mouser p/n 75-125LS10 Price: \$0.68/ea. \$0.60/25, \$0.51/50, \$0.38/100

C33, C36	47 pF	Capacitor, CDE dipped mica, 500V, ED470JO3 qty 2 Mouser p/n 5982-15-500V47 Price: \$0.55/ea, \$0.45/25, \$0.35/100
C34, C35	100 pF	Capacitor, CDE dipped mica, 500V, FD101JO3, qty 2 Mouser p/n 5982-15-500V100 Price: \$0.56/ea, \$0.45/25, \$0.36/100
C37, C38	4700 $\mu$ F	Capacitor, 25V United Chemi-Con electrolytic, snap-mount, qty 2 Mfg part no. KMH25VN472M22X25T2 Mouser p/n 661-KMH25VN472M Price: \$1.43/ea, \$1.35/100, \$1.27/500
D1, D2, D3, D4	BAT46	STMicroelectronics Schottky diode 100V/150mA, qty 4 Mouser p/n 511-BAT46 Price: \$0.14/ea, \$0.12/100, \$0.11/500, \$0.10/1000
D7-D22	1N4148	Fairchild Si signal diode, qty 16 Mouser p/n 512-4148 Price: \$0.05/ea, \$0.041/25
	1N914A (alt)	Fairchild Si signal diode, qty 16 Mouser p/n 512-1N914A Price: \$0.02/ea, \$0.013/100, \$0.012/250, \$0.010/500, \$0.009/1000
D5, D6	BAT41	STMicroelectronics Schottky diode 100V/100mA, qty 2 Mouser p/n 511-BAT41 Price: \$0.122/ea, \$0.10/100, \$0.09/500, \$0.083/1000
DB1	Bridge Rect.	Rectron DB103, 1A/200PIV, qty 1 Mouser p/n 583-DB103 Price \$0.36/ea, \$0.31/100, \$0.25/500, \$0.21/1000
F1	Fuse/clips	3/8A 3AG fuse, qty 1, & Keystone 0.25" 3529 PCB fuse clips, qty 2 Mouser p/n 534-3529 (clips) Price: \$0.12/ea, \$0.07/100, \$0.06/500
H1	Header	SIP 0.100", 21-pin (7 pins x 3 rows) w. shorting jumpers  3M .100" pin strip header 40-pin snappable, qty 1 Mouser p/n 517-6111TN Price \$0.59/ea, \$0.46/100, \$0.42/500, \$0.38/1000  (alt) All Electronics p/n SHS-40 Price: \$0.50/1-9, \$0.40/10-99, \$0.30/100+

	Shunt	3M .100" black shorting jumper, qty 7 Mouser p/n 517-950-00 Price: \$0.22, \$0.21/100, \$0.19/500, \$0.16/1000  (alt) All Electronics p/n SJ-1 Price: \$0.10/1-9, \$0.08/10-99, \$0.07, 100+
J1, J4	Connector	Molex 09-52-3081 K.K. 8-pin, .156" side-entry header, qty 2 Mouser p/n 538-09-52-3081 Price: \$1.18/ea, \$1.04/10, \$0.69/100, \$0.55/500  Alt: Digikey p/n WM3305-ND Price: \$1.25/ea, \$1.103/10, \$0.7354/100
J2	Connector	Molex 09-52-3041 K.K. 4-pin .156" side-entry header, qty 1 Mouser p/n 538-09-52-3041 Price: \$0.65/ea, \$0.39/10, \$0.32/100, \$0.283/500  Alt: Digikey p/n WM3301-ND Price: \$0.62, \$0.55/10, \$0.3668/100
J3, J5	Connector	Molex 09-52-3121 K.K.12-pin .156" side-entry header, qty2 Mouser p/n 538-09-52-3121 Price: \$1.75/ea, \$1.54/10, \$1.03/100, \$0.82/500  Alt: Digikey p/n WM3309-ND Price: \$1.86/ea, \$1.638/10, \$1.0923/100
J6	Connector	Molex 26-60-4030 3-pin K.K. series 156" header, qty 1 Mouser p/n 538-26-60-4030 Price: \$0.35/ea, \$0.30/10, \$0.20/100, \$0.16/500
K1 –K11	Relay	P&B/Tyco V23105, DPDT 12VDC/960 ohm coil, qty 11 Mouser p/n 655-V23105A5003A201 Price: \$1.54/ea, \$1.40/25, \$1.25/50, \$1.02/100
L1, L3	--	Inductor, custom, qty 2 8t #22 enameled wire, air wound on 1/4-20 thread
L2	--	Inductor, custom, qty 1 9t #22 enameled wire, air wound on 1/4-20 thread  1 lb spool (500 ft) #22 AWG enameled wire Mouser p/n 501-MW22H-1LB Price \$9.82/spool

Q1	2N4401	Fairchild NPN gen purpose transistor, qty 1 Mouser 512-2N4401_D11Z Price: \$0.09/ea, \$0.074/25, \$0.064/100, \$0.054/250
R1, R3-R9	51 $\Omega$	Resistor, Xicon 5% carbon film 1/2W, qty 8 Mouser p/n 293-56 Price: \$0.08/10, \$0.014/100
R18	56 $\Omega$	Resistor, Xicon 5% carbon film 1/2W, qty 1 Mouser p/n 293-51 Price: \$0.08/10, \$0.014/100
R10	100 $\Omega$	qty 1
R11, R15	1 K $\Omega$	qty 2
R2	12 K $\Omega$	qty 1
R12	15 K $\Omega$	qty 1
R13, R17	2200 $\Omega$	qty 2
R19- R26	10 K $\Omega$	qty 8
R14	100 K $\Omega$	qty 1
		Resistor, Xicon 5% carbon film 1/4W, qty 16 Mouser p/n 291-Value (e.g., 291-1K) Price: \$0.07/10, \$0.009/200
R16	110 $\Omega$	Resistor, Xicon 5% metal oxide power 1W, qty 1 Mouser p/n 281-110 Price: \$0.13/ea, \$0.09/100, \$0.05/1000
R27, R28	150 $\Omega$	Resistor, Xicon 5% metal oxide power 3W, qty 2 Mouser p/n 283-150 Price: \$0.39/ea, \$0.25/100, \$0.15/1000
T1	Xfmr	Stancor, dual secondary, 10VCT/0.6A each sec. PCB mount, qty 1 Mfg. p/n DSW520 (115V/230V dual pri.) or SW520 (115V single pri.)  DSW520: Allied Electronics p/n 928-0218, Price:\$8.25/1-9, \$7.69/10-24  SW520: All Electronics p/n PCTX-2061 Price: \$4.00/ea  Parallax FS20-600 (115/230V dual pri) or F20-600 (115V single pri)  FS20-600: Mouser p/n 553-FS20-600 Price: \$11.00/ea, \$9.35/10, \$8.36/25

F20-600: Mouser p/n 553-F20-600  
 Price: \$9.91, \$8.42/10, \$7.53/25

U1, U2	MAX497	Maxim 275MHz quad closed-loop video buffer, 16p DIP, qty 2 Mfg part no. MAX497CPE Digikey p/n MAX497CPE-ND Price: \$8.15/ea (qty 25) (order two free samples from <a href="http://www.maxim-ic.com">www.maxim-ic.com</a> )
U3	GALI-6	Mini-Circuits 50 $\Omega$ , DC-4 GHZ monolithic amplifier, qty 1 Mini-Circuits Missouri Inc. Branson, MO 65615 (417) 335-5935 Price: \$3.10/ea (qty 1)
U4-U7	40107	STM Microelectronics 8-pin DIP 2-input NAND buffer, qty 4 Mfg part no. HFC40107BEY Mouser p/n 511-40107 Price: \$0.44/ea, \$0.37/100, \$0.33/500, \$0.30/1000
U8	MC7805	Fairchild MC7805CT, +5V regulator, TO-220, qty 1 Mouser p/n 512-MC7805CT Price: \$0.45/ea, \$0.33/25, \$0.28/100, \$0.22/250
U9	MC7905	Fairchild MC7905CT, -5V regulator, TO-220, qty 1 Mouser p/n 512-MC7905CT Price: \$0.45/ea, \$0.33/25, \$0.28/100, \$0.22/250
--	Heatsink	Aavid Thermalloy TO-220/126/127, qty 2 Mouser p/n 532-507302B00 Price: \$0.23/ea, \$0.20/10, \$0.17/100, \$0.15/500
--	Hardware	screw 6-32x1/4", qty 2 lockwasher #6, qty 2 nut 6-32, qty 2

#### B. Front Panel Circuit Board

D100	1N4005	Fairchild rectifier diode 1A/600PIV, qty 1 Mouser p/n 512-1N4005
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		Price: \$0.40/ea, \$0.30/25, \$0.20/100
DS100, DS108	LED-YE	Kingbright LED, Yellow, T-1 3/4, qty 2 Mouser p/n 604-L53YD Price: \$0.16/ea, \$0.13/100, \$0.11/500
DS109	LED-RE	Kingbright LED, Red, T-1 3/4, qty 1 Mouser p/n 604-L53HD Price: \$0.16/ea, \$0.13/100, \$0.11/500
DS101-DS107	LED-GR	Kingbright LED, Green, T-1 3/4, qty 7 Mouser p/n 604-L53GD Price: \$0.19/ea, \$0.16/100, \$0.13/500
J100, J101	Connector	Molex K.K. .156" 12-pin straight header, qty 2 Mouser p/n 538-26-48-1121 Price: \$0.88/eas, \$0.77/10, \$0.46/100, \$0.37/500, \$0.319/1000
R100-R109	1 K $\Omega$	Resistor, Xicon 5% carbon film 1/4W, qty 10 Mouser p/n 291-Value Price: \$0.07/10, \$0.009/200
S100	Switch	E-Switch SPST (RR3402A) or SPDT (RR3402C), qty 1 Mouser p/n 612-RR3402A Price: \$2.51/ea, \$2.23/10, \$1.77/100, \$1.33/500  Radio Shack (R13-402C) p/n 275-648 Price \$2.99/ea
S101-S109	Switch	Mountain Switch, min. toggle, flat lever, SPDT, qty 9 Mouser p/n 1055-TA2130 Price: \$2.14/ea, \$1.78/10, \$1.62/100, \$1.48/500, \$1.10/1000, \$0.939/2K
S110	Switch	Mountain Switch, min. toggle, flat lever, DPDT, qty 1 Mouser p/n 1055-TA2160 Price: \$2.80ea, \$2.33/10, \$2.12/100, \$1.93/500, \$1.45/1000
<u>C. Rear Circuit Board</u>		
C200	0.1 $\mu$ F	Xicon Z5U epoxy dipped ceramic, qty 1 Mouser p/n 21RZ310 Price: \$.08/ea, \$.069/100, \$.053/500, \$.046/1000, \$.042/2K, \$.040/5K
C201-C208	1000 pF	Xicon ceramic disc Y5P 1000V, qty 8 Mouser p/n 140-102P6-102K

		Price: \$0.16/ea, \$0.10/200, \$0.088/400, \$0.075/1000
J200	Connector	Molex K.K. .100" 4-pin straight header, qty 1 Mouser p/n 538-22-03-2041 Price: \$0.24/ea, \$0.22/10, \$0.20/100, \$0.14/500
J202	Connector	Molex .156 4-pin straight breakaway header, qty 1 Mouser p/n 538-26-48-1041 Price: \$0.31/ea, \$0.22/10, \$0.19/100, \$0.15/500
J208, J217	Connector	Molex .156 8-pin straight breakaway header, qty 2 Mouser p/n 538-26-48-1081 Price: \$0.58/ea, \$0.41/10, \$0.36/100, \$0.27/500
J201, J204-J207 J209-J212	Connector	Tyco/Amp BNC PCB vert. jack w/post (hardware sold separately) Mfg p/n 227673-1 Mouser p/n 571-2276731 Price: \$2.11/ea, \$1.82/25, \$1.61/50, \$1.44/100  Tyco/Amp BNC PCB vert. jack wo/post All Electronics BNC-8 Price: \$1.25/ea, \$1.10/10, \$0.85/100+  Lockwasher , qty 9 Mouser p/n 571-13296322 Price: \$0.16/ea  Jam Nut Mouser p/n 571-13296312 Price \$0.17/ea
J203, J213-J216, J218-J221	Connector	DGS Pro-Audio RCA phono jack, rear chassis mount, qty 9 Mouser p/n 16P-J035 (Black) 161-0351 (Red) Price: \$1.41/ea, \$1.17/10, \$1.06/100, \$0.97/500, \$0.905/1K  Switchcraft 3501FR, RCA phono jack, rear chassis mount Digikey p/n SC1134-ND Price: \$1.76/ea, \$1.32/10, \$1.10/100
R200	1 K $\Omega$	Resistor, Xicon 5% carbon film 1/4W, qty 1 Mouser p/n 291-Value

Price: \$0.07/10, \$0.009/200

D. Low Frequency/AM Broadcast Filter Circuit Board

C300	1800 pF	Xicon polystyrene 50V, qty 1 Mouser p/n 23PS218 Price: \$0.24/ea, \$0. 12/100, \$0.11/500, \$0.10/1K, \$0.09/2K
C301	0.015 $\mu$ F	Xicon radial polypropylene 250V, qty 1 1431-2153K Price: \$0.34/ea, \$0. 23/100, \$0.20/500, \$0.19/1K, \$0.153/2K
C302, C306	1200 pF	Xicon polystyrene 50V, qty 2 Mouser p/n 23PS212 Price: \$0.24/ea, \$0. 12/100, \$0.11/500, \$0.10/1K, \$0.09/2K
C303, C304	1500 pF	Xicon polystyrene 50V, qty 2 Mouser p/n 23PS215 Price: \$0.24/ea, \$0. 12/100, \$0.11/500, \$0.10/1K, \$0.09/2K
C305	100 pF	Xicon polystyrene 50V, qty 1 Mouser p/n 23PS110 Price: \$0.24/ea, \$0. 12/100, \$0.11/500, \$0.10/1K, \$0.09/2K
C307	3900 pF	Xicon polystyrene 50V, qty 1 Mouser p/n 23PS239 Price: \$0.24/ea, \$0. 12/100, \$0.11/500, \$0.10/1K, \$0.09/2K
C308	390 pF	Xicon polystyrene 50V, qty 1 Mouser p/n 23PS139 Price: \$0.24/ea, \$0. 12/100, \$0.11/500, \$0.10/1K, \$0.09/2K
C309	2200 pF	Xicon polystyrene 50V. qty 1 Mouser p/n 23PS222 Price: \$0.24/ea, \$0. 12/100, \$0.11/500, \$0.10/1K, \$0.09/2K
J300	Connector	3M .100" low-profile pin strip socket 4-pin, qty 1 Mouser p/n 517-870-01-04 Price: \$1.10/ea, \$0.94/100, \$0.86/500, \$0.79/1000
L300	3.9 $\mu$ H	Vishay/Dale molded inductor, qty 1 Mouser p/n 70-IM2-3.9 Price: \$0.65/ea, \$0.44/10, \$0.312/100
L301, L302	4.7 $\mu$ H	Vishay/Dale molded inductor, qty 2



Mouser p/n 70-IM2-4.7  
 Price: \$0.65/ea, \$0.44/10, \$0.312/100

-- Hardware Keystone #4 round spacer, 1/4" qty 2  
 Mouser p/n 534-398  
 Price: \$0.12/ea, \$0.058/100, \$0.048/500

Screw 4-40x5/8", qty 2  
 Lockwasher #4, qty 2  
 Nut 4-40, qty 2

### E. Chassis

-- Receptacle DGS Pro-Audio 120VAC AC, chassis mount, qty 1  
 Mouser p/n 161-0707-1  
 Price: \$0.74, \$0.62/10, \$0.56/100, \$0.51/500, \$0.442/1000

-- Connector Molex K.K. .156 3-pin w/lock, qty 1  
 Mouser p/n 538-09-50-3031  
 Price: \$0.13/ea, \$0.12/10, \$0.11/100, \$0.08/500

-- Mtg Clip Cliplite LED mounting clip, qty 10  
 Mouser p/n 593-CLP125  
 Price: \$0.06/ea, \$0.053/10, \$0.051/100, \$0.44/500, \$0.38/1K

-- Enclosure Buckeye Shapeform E7 series, 1/2 DIN, qty 1  
 dimensions 8.50"D x 7.60 "W x 3.78"H  
 Mfg p/n ERC-7-08  
 Buckeye Shapeform  
 555 Marion Road  
 Columbus, OH 43207  
 1-800-728-0776  
 Price: \$50/ea (approx) – not punched/silkscreened

-- Pwr cord Three conductor, NEMA 5-15P plug, 7'6", qty 1  
 Mouser p/n 173-63101  
 Price: \$3.98/1, \$3.34/10, \$2.99/100, \$2.70/500

-- Wire 12" white, 20AWG, stranded, 600V, qty 1  
 3" green, 20AWG, stranded, 600V, qty 1  
 12" black, 20 AWG, stranded, 600V, qty 1

-- Hardware screw, 6-32x0.5in machine, stainless, phillips head, qty 2

solder lug, #6, qty 1  
lockwasher, internal, #6, qty 2  
nut, 6-32, stainless, qty 2

Sleeving heat shrink, 1/8", 2 inches.

Ty-Wraps 4 inch, qty 2

Feet rubber, 3/8" square, adhesive-backed, qty 4