

Station Automation & Integration

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Automation & Integration Goals

- **Instant Bandswitching** - Including Antennas, Filters, Amp & Software
- **Minimize Errors** – Wrong antenna, amp band and logging band
- **Uncomplicated Operation** – Easy on you and guest operators
- **Minimize Manual Operations** – System does keying, voice synthesis,
Logical antenna selection, Logical rig selection
No extra switches to throw, No Tuners to tune

Allows operator to “operate” and not worry about all of the above.



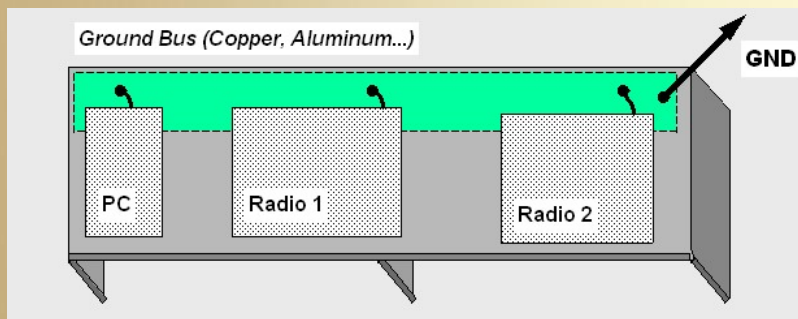
Simple Ground Distribution

Method Features

Low impedance ground bus

Reduced RFI and hum

Ground posts where needed



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Station Logging/Control Computer (examples)

Computer Requirements

Well shielded for RFI/EMI

No RF Susceptibility

Compact size, SFF

Adequate I/O ports

Good audio/video subsystem

Fast Processor, quiet operation

Base Cost: \$219



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Simple Power Distribution Box – 12Vdc

Box Features

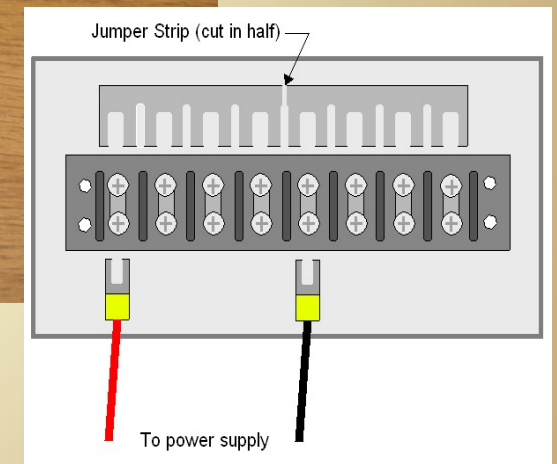
Made from simple RS parts

1 input, 7 outputs

Secure terminations – can't pull out with cover on

COST: \$8

Made by: KF6T



Computer Radio Control (CAT) Methods

RS-232 - Original PC serial (comm) port. Not found on laptops. Used for CW, PTT and radio data. May be created virtually using USB.

LPT - Original parallel (printer) port. Still available on some PCs. Used for CW, band data (BCD), PTT and SO2R control.

USB – Has become the universal port. Provides power and 2-way data. Can be used for all control and audio. Obsoletes simple control.

Virtual Comm Port – A Serial port created to allow existing software needs to communicate. Allows USB to replace hardware comm ports.

CIV – A serial port (one wire) used for CAT control of Icom radios

Ethernet/Wireless LAN – Can be used to acquire internet spots and communicate between networked radios.



Simple Radio Control & CW Cables – RS232 interface

Cable Features

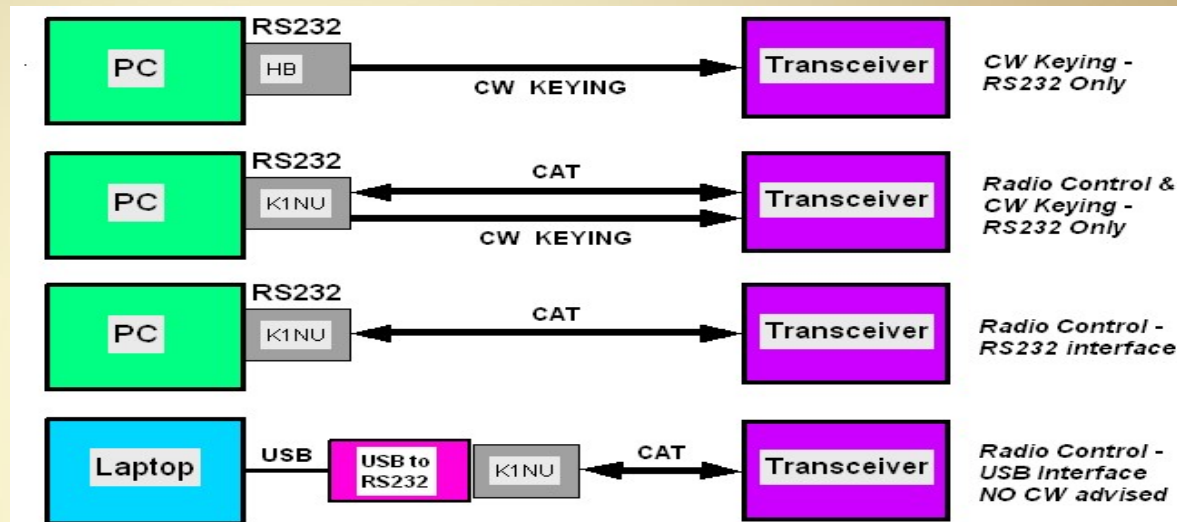
Cable #1 K1NU CW cable
COST: \$28

Cable #2 K1NU Dual cable
CW and Radio Control
COST: \$52

Cable #3 K1NU Radio
Control cable. Cost: \$32

Cable #4 K1NU RC cable
with USB to Serial Converter

Made by: K1NU Products

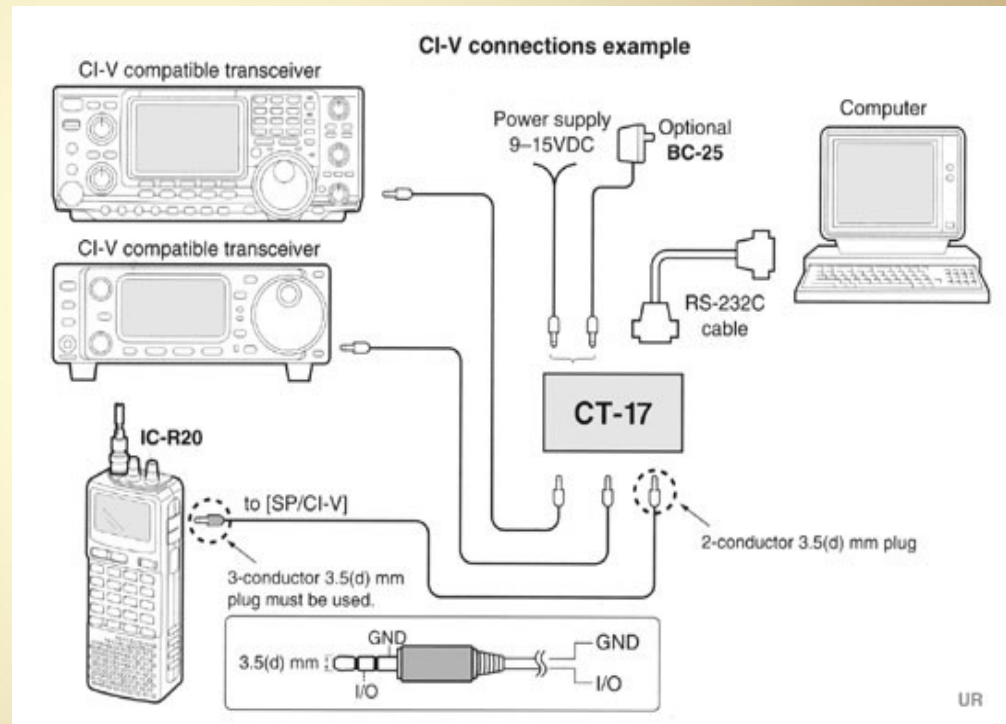


Radio Interface (CAT) – RS232 Input – 4 CIV (Icom only) Outputs

Features:

Interface up to four rigs
Find at swap meets cheap

Made by: Icom
Model: IC-CT-17
Cost: \$150



CW Keyer – Button Inputs – Key, Speaker Outputs

Features -

Super cheap kit

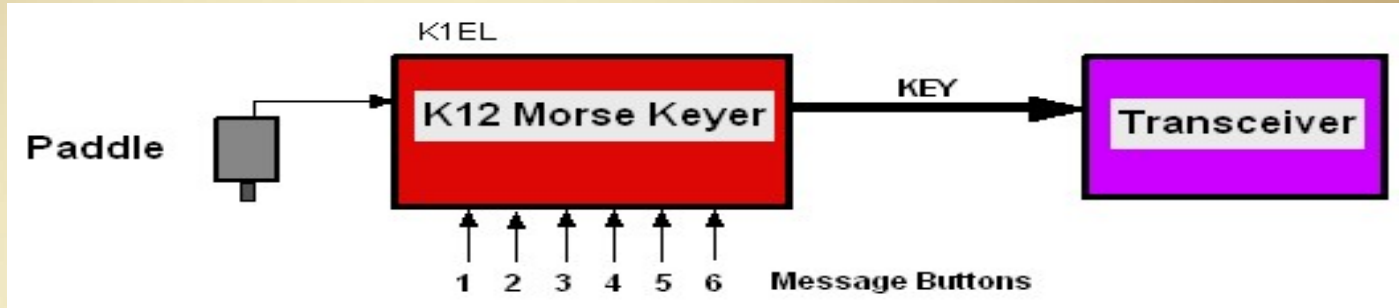
Battery powered (one yr)
or ext power version

Six stored messages

Made by: K1EL

Model: K12

Cost: \$17



CW Keyer – USB Input – Key & PTT (no CAT) Outputs

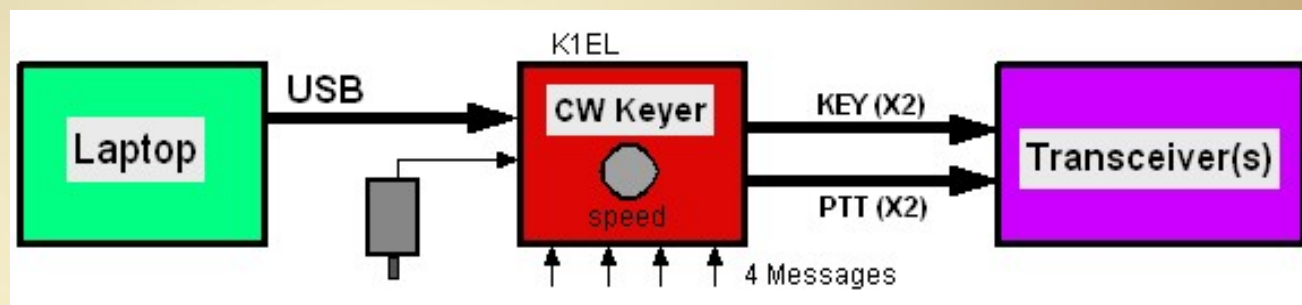
Keyer Features –

- Four messages
- Two rig output
- Battery powered
- Micro power standby
- WinKey2 (univ interface)
- Sidetone speaker

Model: WKUSB

COST: \$68 (kit)

Made by: K1EL



CW Keyer – USB Input – Key, PTT and CAT Outputs

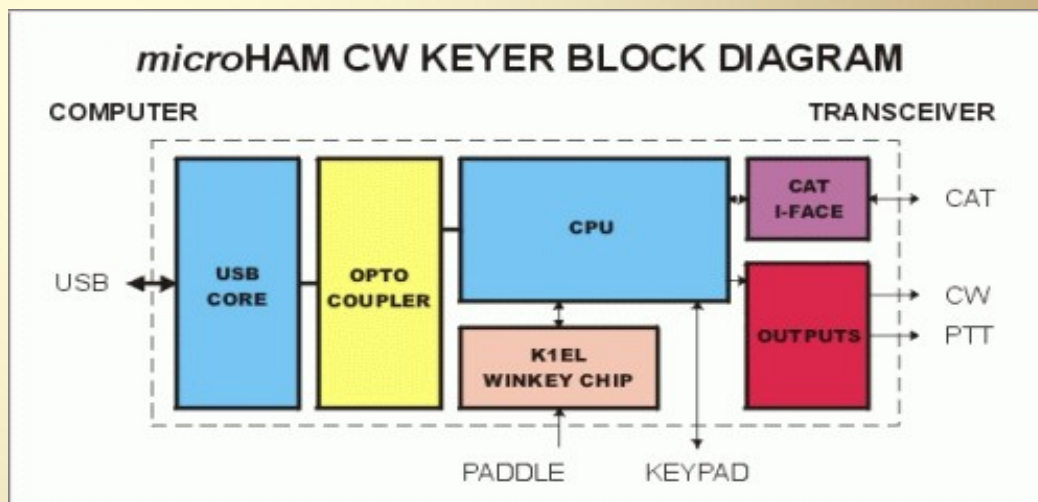
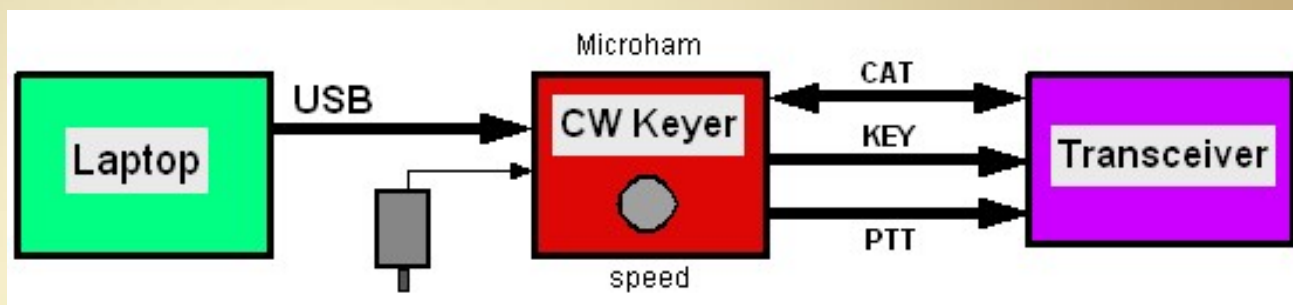
Features -

Keying sync to software
PTT from cw & messages

Made by: MicroHam

Model: CW Keyer

COST: \$159



MicroHam Router - Virtual comm port generator



CAT: none [v] [Set]

2nd CAT: none [v]

CW: none [v] DTR [v] [Test]

PTT: none [v] RTS [v] [Test]

WinKey: COM4 [v] open 1200 8N2 [v] [Test] [Mon]

Control: none [v] [Mon]

microHAM USB Device Router 7.1.5

Router Preset Device Virtual Port Help

CW KEYER

Ports CW / WinKey CW Messages

Paddle mode: Iambic A (Curtis) [v]
 Priority: [] dit [] dah
 Paddle setpoint: 50 [v] %
 Disable paddle memory
 Swap paddles
 Auto space
 CT space

Speed pot min: 15 [v] WPM
 Speed pot max: 40 [v] WPM
 Farnsworth speed: 0 [v] WPM
 DIT / DAH = 100 / 330 [v]
 Weighting: 53 [v] %
 1st extension: 0 [v] ms
 Keying compensation: 0 [v] ms (QSK only)

Serial port PTT: PTT [v]
 PTT lead: 20 [v] ms
 PTT tail: 10 [v] ms
 Side tone: none [v]
 Speed step: +/- 2 [v]

CW from keyboard:
 Type ahead
 QWERTZ layout

Auto numbering:
 Leading zero as T
 Zero as T
 One as A
 Nine as N
 Report 5NN

WK Echo: CM98 CM98 CM98 KF6T TU TEST KF6R CM98 CM98 /1 TU KF6T KF6T K TU KF6T +
 Current speed: 27 WPM Speed pot: 27 WPM Next number: 001

Internal CW keyer (WinKey) setup CW KEYER v5.4 (WinKey rev. 10) connected



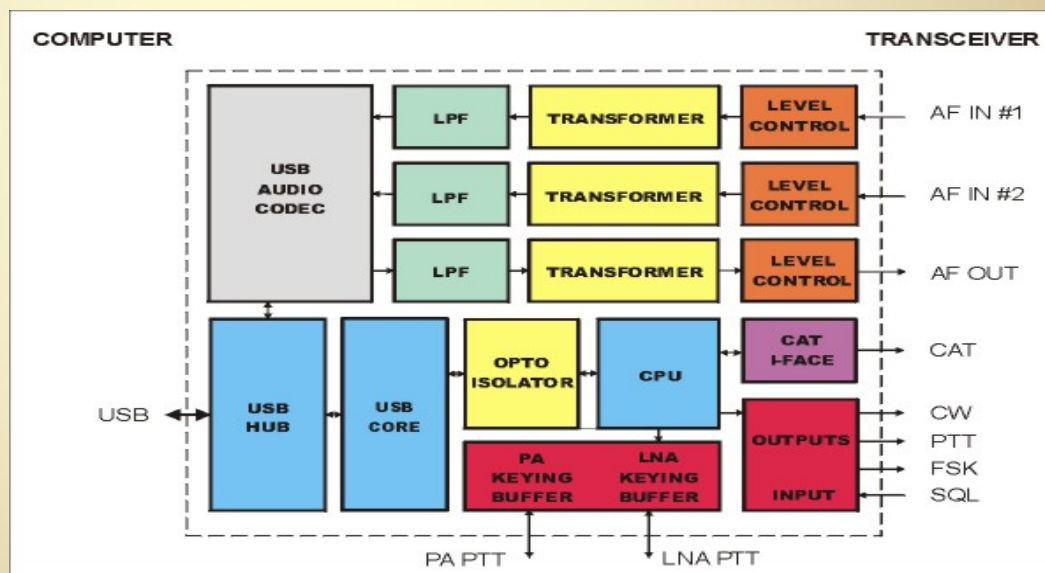
Digital modes – USB Input – CW, FSK, Audio, PTT & CAT Outputs

Features -

USB Sound Card (2 Chan)
FSK operation
Isolated Audio
Universal CAT interface
Level Adjustments
T/R Sequencer for PTT
No Paddle Input!
No Mic Input!

Made by: MicroHam
Model: DIGI KEYER

COST: \$280 + cables



CW/SSB & Digital modes – USB – CW, FSK, Audio, PTT & CAT Outputs

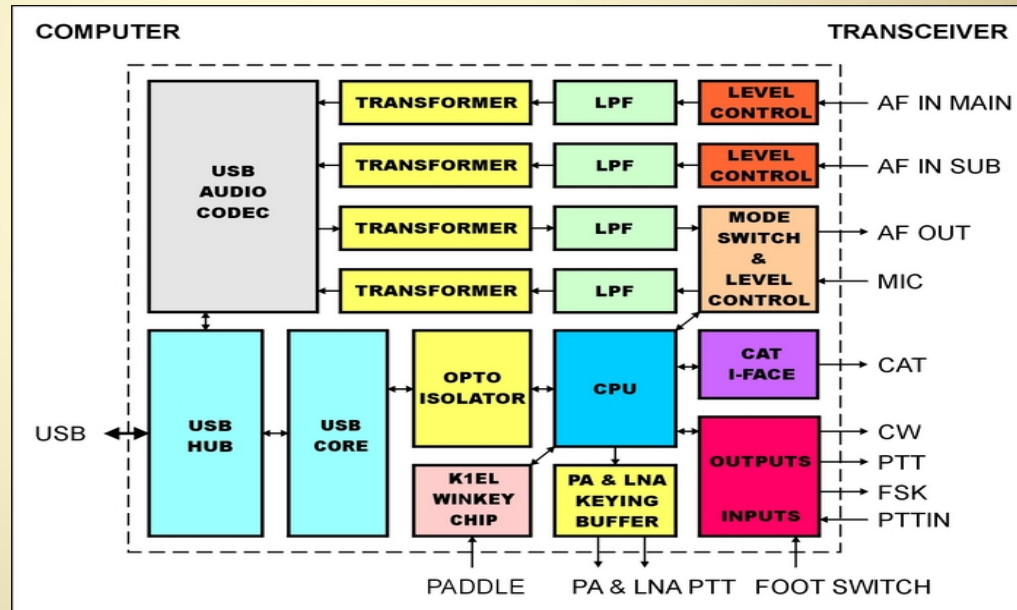
Features –

- USB Sound Card (2 Chan)
- FSK operation
- Isolated Audio
- Universal CAT interface
- Level Adjustments
- T/R Sequencer for PTT
- Paddle Input
- Microphone Input
- Single Radio

Made by: MicroHam

Model: micro KEYER II

COST: \$378 + cables



Band Decoder & Antenna Relay – Icom, Yaesu, K3 Interface

Decoder Features –

Auto or Manual Mode
Matrix output
Source and Sink outputs

Model: BD-X-SD

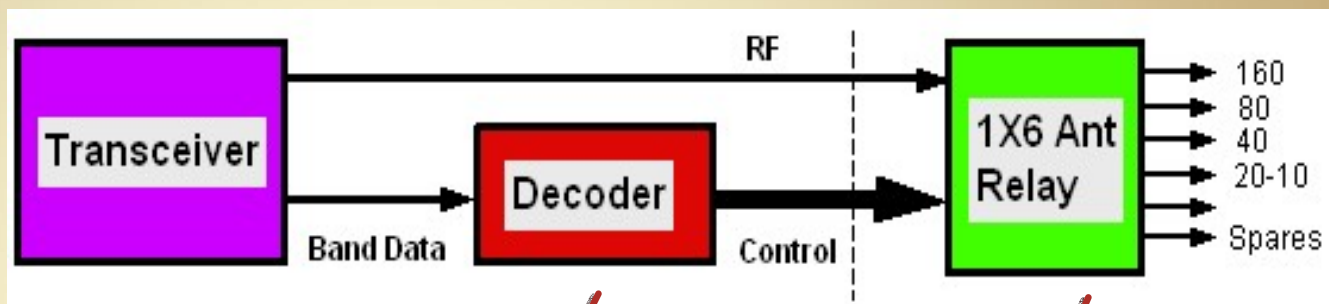
COST: \$155

Switch Features –

One input, Six out (1X6)
>40 db isolation
1.5 Kw (CW/SSB)

COST: \$125

Made by: Top Ten Dev



Band Controller & Antenna Relay (1 X 6)

Control Features –

Auto or Manual Mode
Auto requires ext decoder

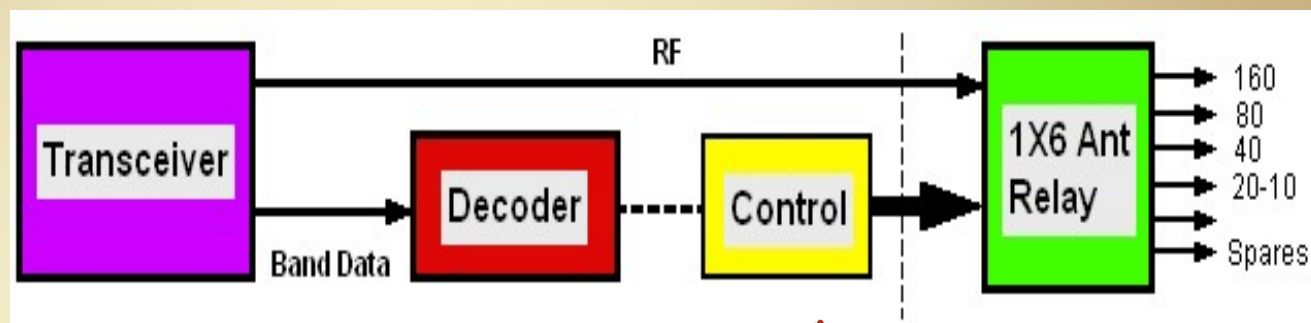
Switch Features –

One input, Six out (1X6)
5 kW CCS power
Good to 6 meters

COST: \$239 (switch)

COST: \$60 (control)

Made by: Array Solutions



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SixPak Antenna Relay (2 X 6) – Two Radio Operation (SO2R)

Control Features –

Auto or Manual Mode
Auto requires ext decoder
Needs +13 to switch

Switch Features –

Two inputs, Six out (2X6)
5 kW CCS power
Good to 6 meters
Interlock Protection

COST: \$375 (switch)

COST: \$75 (control)

Made by: Array Solutions



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Various MicroHam Antenna Relays

Switch Features –

0 to 30 MHz operation

5kw Rating @ 1.3:1 vswr

2kw Rating @ 3.0:1 vswr

+9 to +16v Relays

Unselected ports gnded

Double fault protection

Two relays in series iso

Built-in surge protection

Made by: MicroHam

1 X 6 - \$420



2 X 6 - \$616



1 X 10 - \$476



2 X 10 - \$924



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Band Data Decoder – Icom, Yaesu, Elecraft Interface

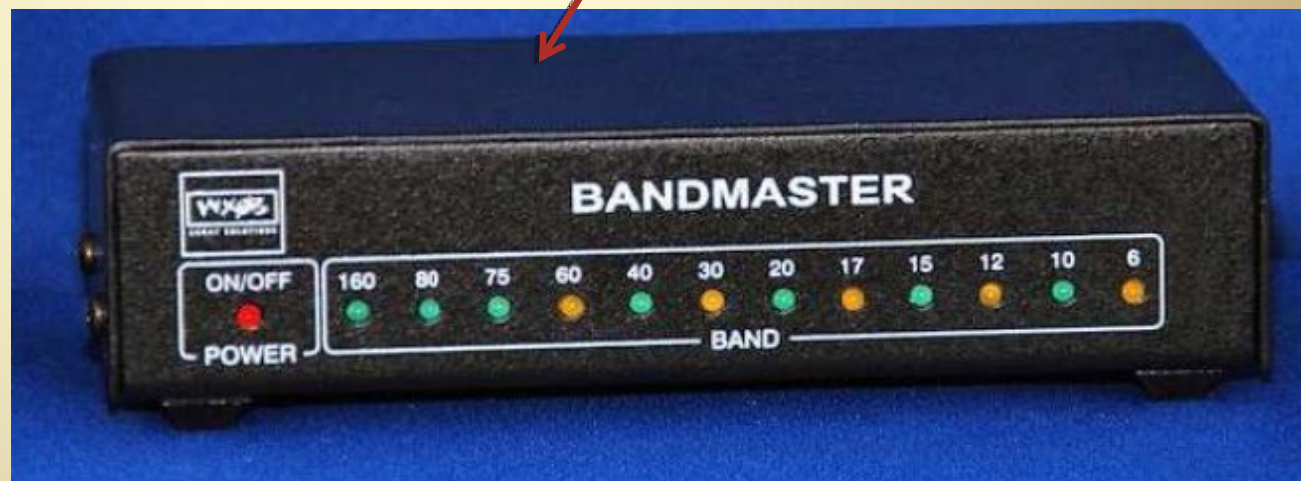
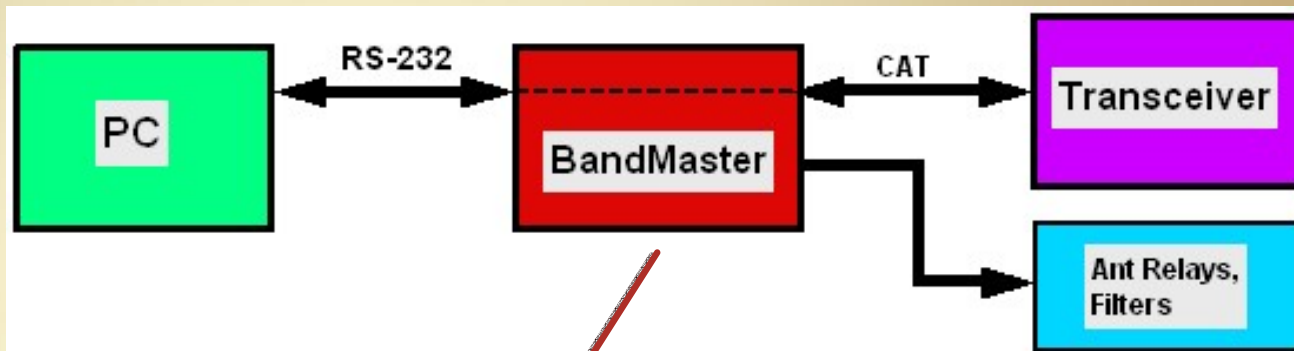
Decoder Features –

- CAT Decoder
- Radio pass thru to PC
- Band Segment Software
- Can split 80 and 75
- Source and Sink outputs
- Can generate CW/PTT

Model: Bandmaster

COST: \$329 + Cable

Made by: Array Solutions



Station Controller – USB Interface - CW, PTT, CAT & Relay Outputs

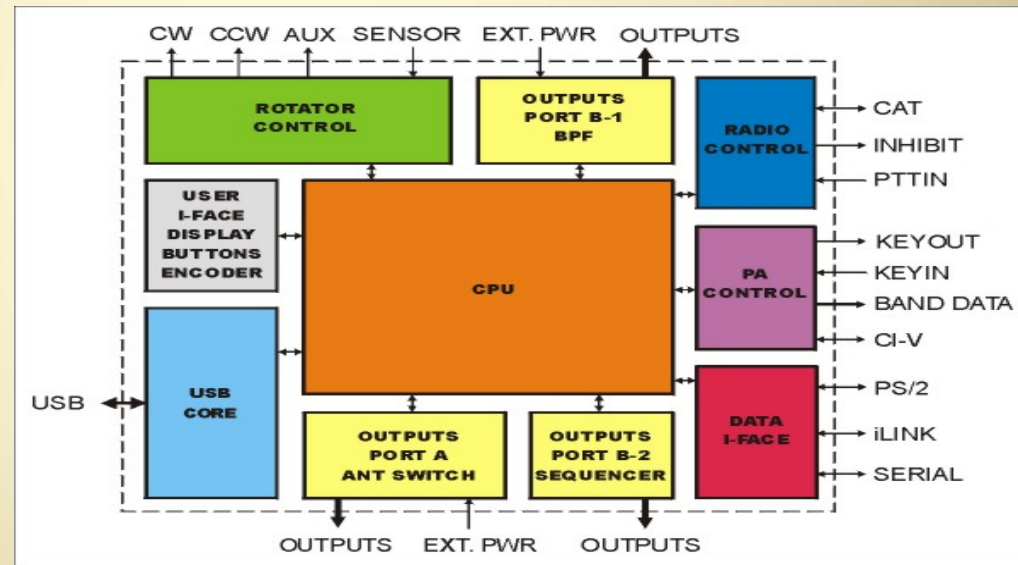
Controller Features –

Rotor Control
SteppIR support
Band Decoder
CAT Decoder
Band split decoder (80/75)
20 program relay outputs
Compatible with uH keys

Model: Station Master

COST: \$350 + Cable

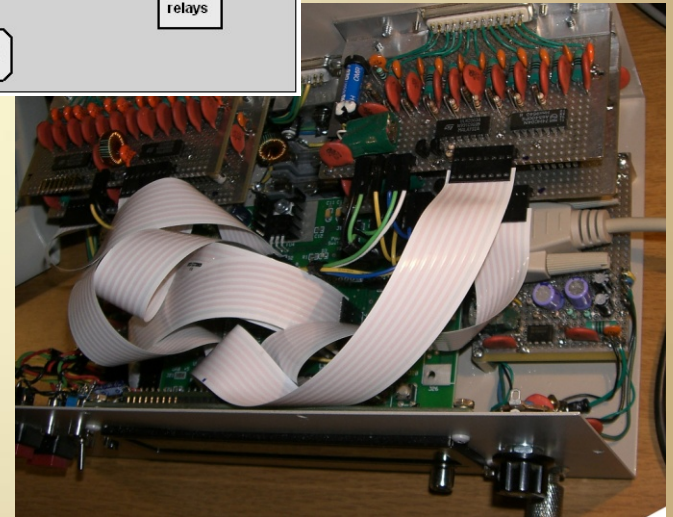
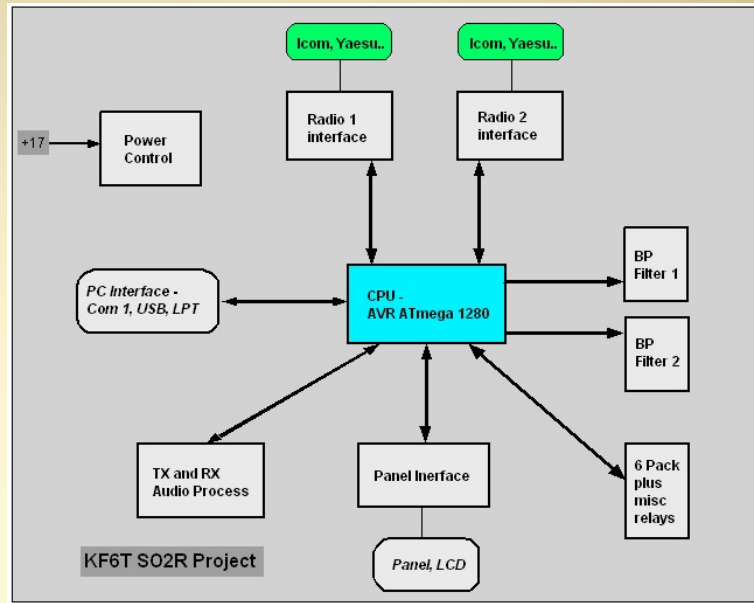
Made by: MicroHam



KF6T Station Controller –

Controller Features –

- Simple User Interface
- Dual RX Band Decoder
- Smart Antenna Selection
- Support six pack switch
- Dual BP Filter Control
- Advanced SO2R support
- Stereo imaging of audio



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Power Meter, multi channel – LCD and PC/Laptop Display

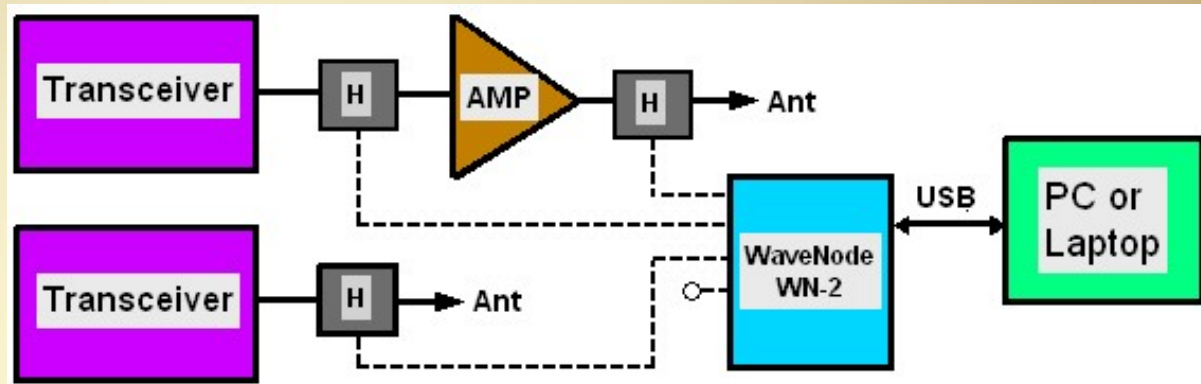
Meter Features –

- Monitor 4 sensors
- Monitor Peak & Average
- Separate VSWR readouts
- Sensors up to 470 MHz
- Spectrum Analysis of RF
- Make VSWR Graphs
- USB Interface

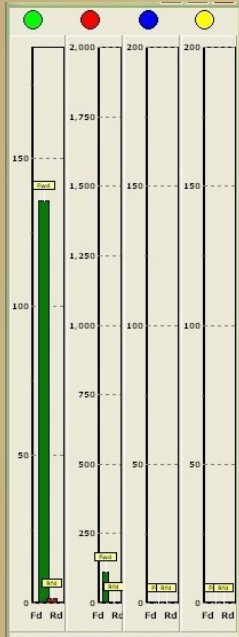
Model: WN-2

COST: \$385 (1 Sensor)
Extra Sensors \$60

Made by: WaveNode



WaveNode WN-2 Power Meter PC Displays



Screens: AUX 1 AUX 2 AUX 3

WaveNode WN-2
WWW.WaveNode.Com

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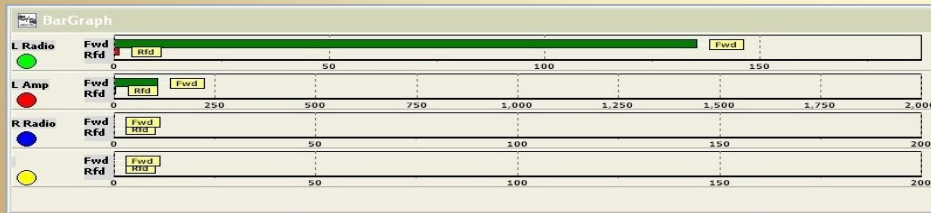
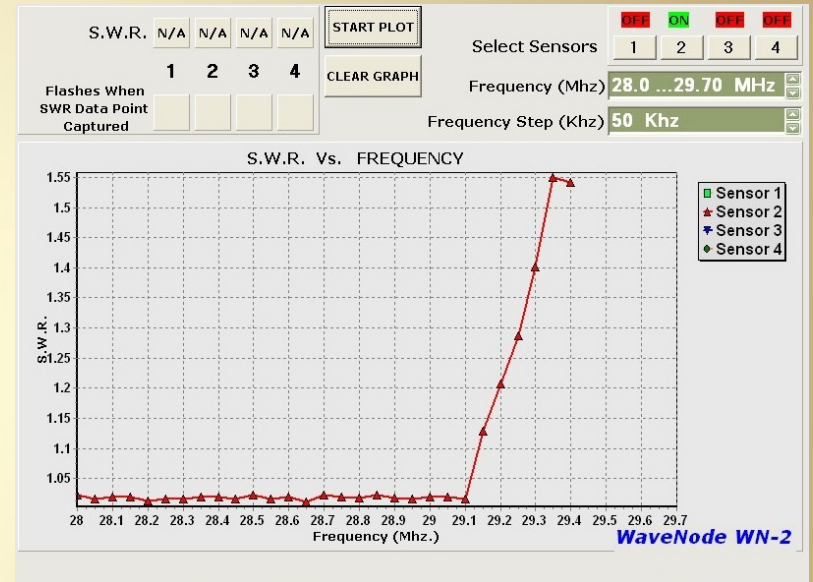
SWR RESET SWR Limit 3.0 Peak Hold Time 1
SWR Monitor 1 Averaging Time 1

Radio	Watts Fwd	Watts Rfd	SWR
L Radio	136.5	1.4	1.25
L Amp	112.3	4.8	1.47
R Radio	0.0	0.0	N/A
L Radio (2nd)	0.0	0.0	N/A

DC SUPPLY VOLT. 13.12
SUPPLY CURR. 11.77

Logic Outputs: Ctl #1 OFF, Ctl #2 OFF, Ctl #3 OFF, Ctl #4 OFF
Logic Inputs: 1 Low, 2 Low, 3 Low, 4 Low

Display: USB Link OK, All Peak, All Average
Audio On...Press To Toggle



MiniPanel

	L Radio	L Amp	R Radio
PWR.	135.6	111.3	0.0
SWR	1.25	1.52	N/A



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