# 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.

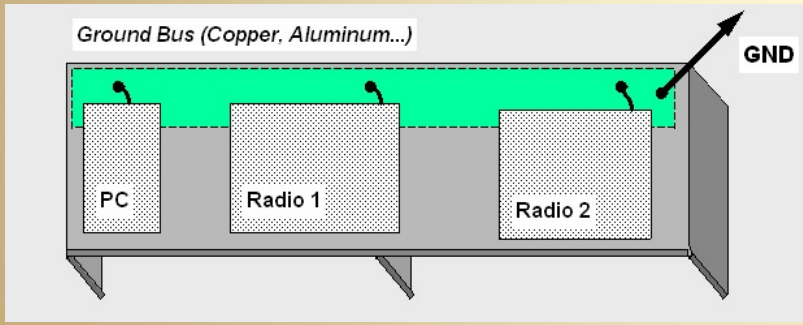
# Simple Ground Distribution

## Method Features

Low impedance ground bus

Reduced RFI and hum

Ground posts where needed




# 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


# Simple Power Distribution Box – 12Vdc

## Box Features

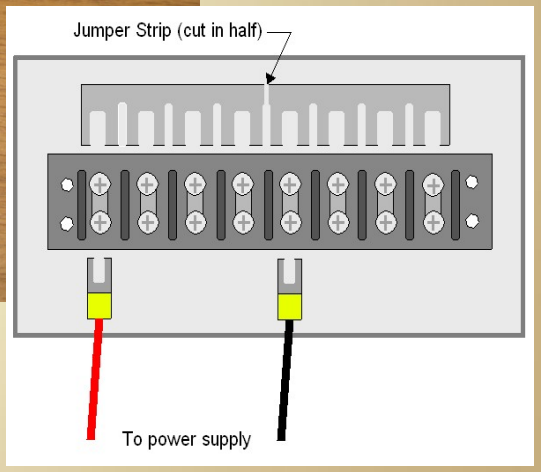
Made from simple RS parts

1 input, 7outputs

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

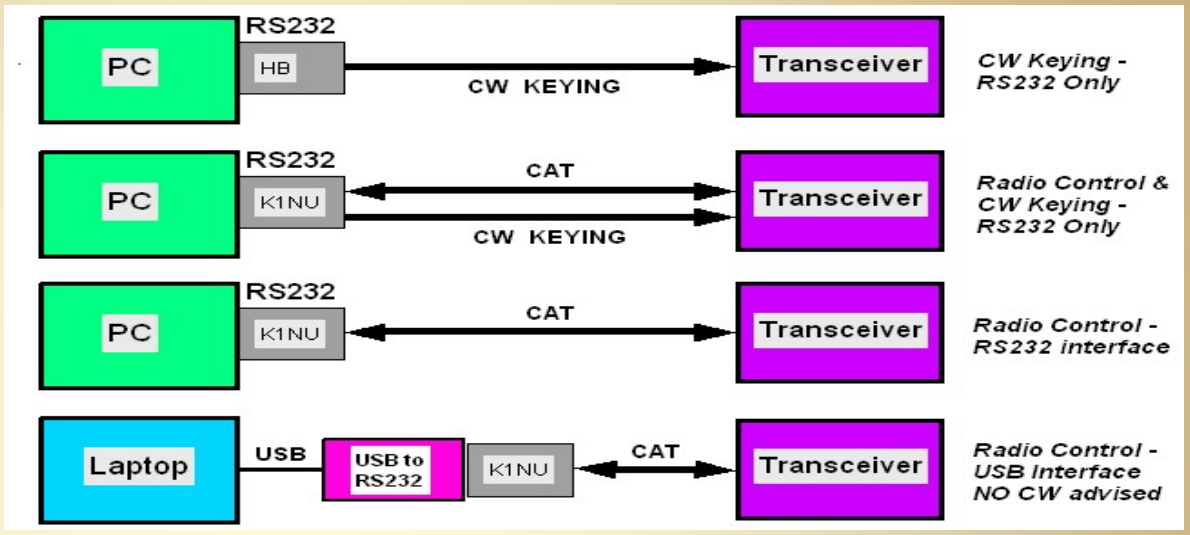
Cable #1 K1NU CW cable
COST: $28

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

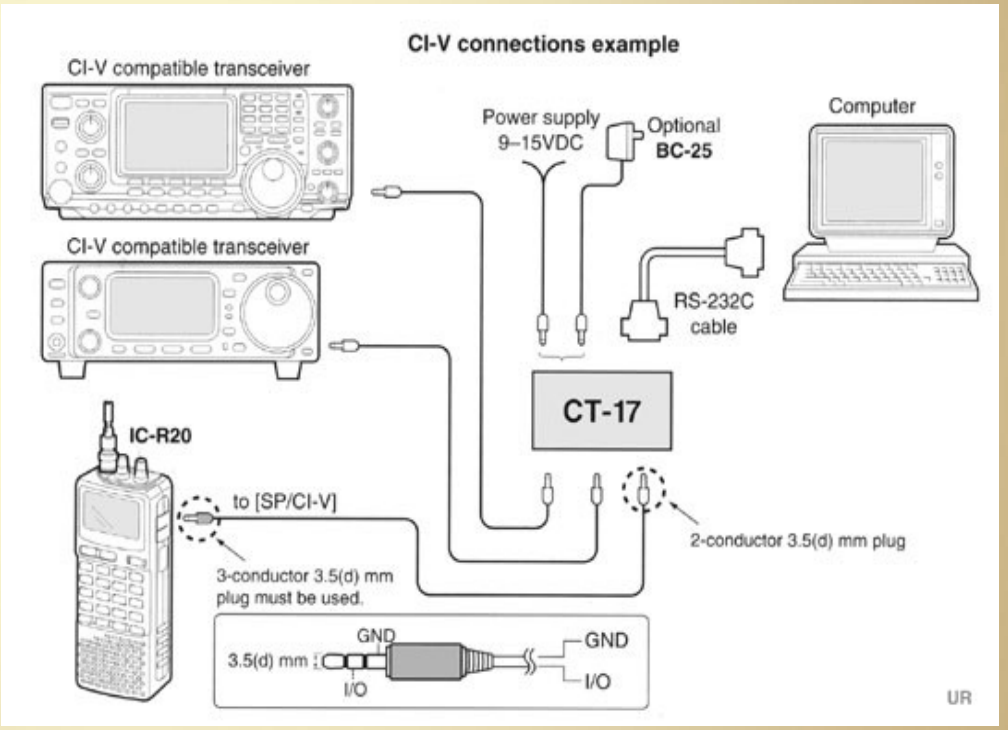
Made by: K1NU Products




# 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

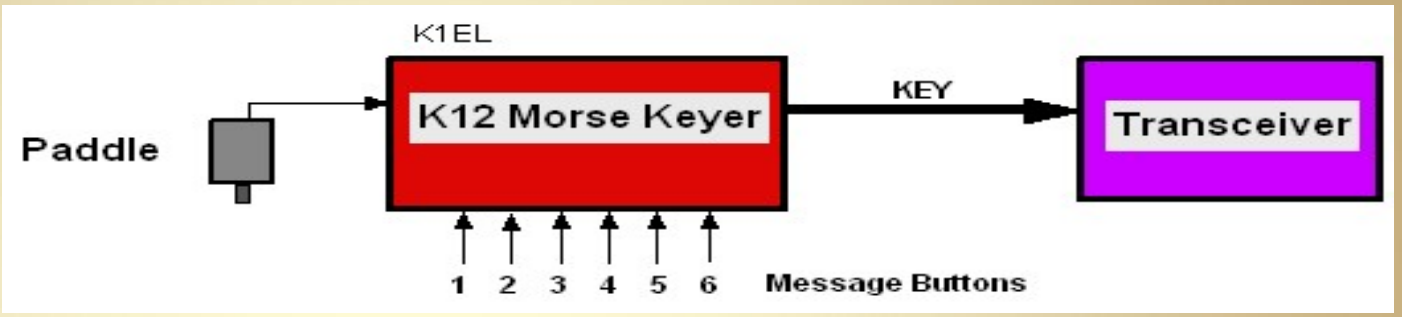
Battery powered (one yr) or ext power version

Six stored messages

**Made by:** K1EL

**Model:** K12

**Cost:** $17





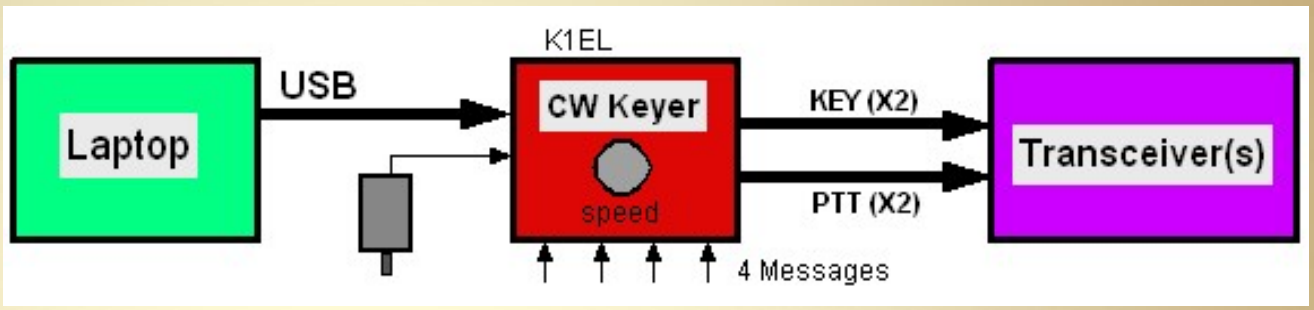
# CW Keyer – USB Input – Key & PTT (no CAT) Outputs

## 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



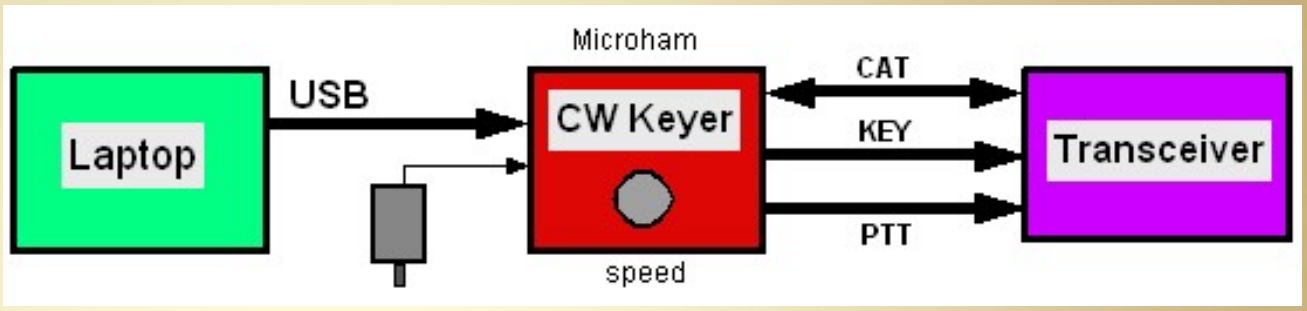


# CW Keyer – USB Input – Key, PTT and CAT Outputs

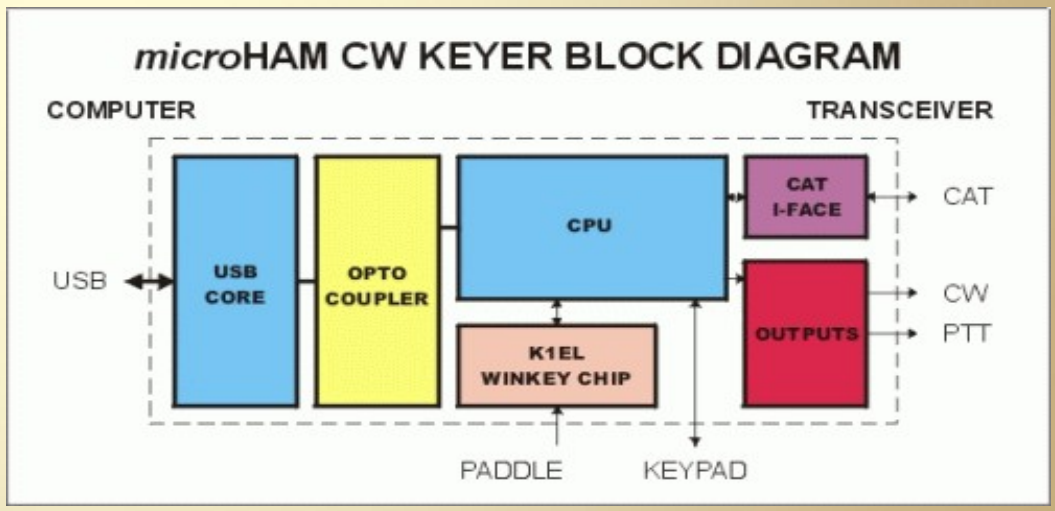
## Features -

Keying sync to software
PTT from cw & messages

Made by: MicroHam
Model: CW Keyer
COST: $159

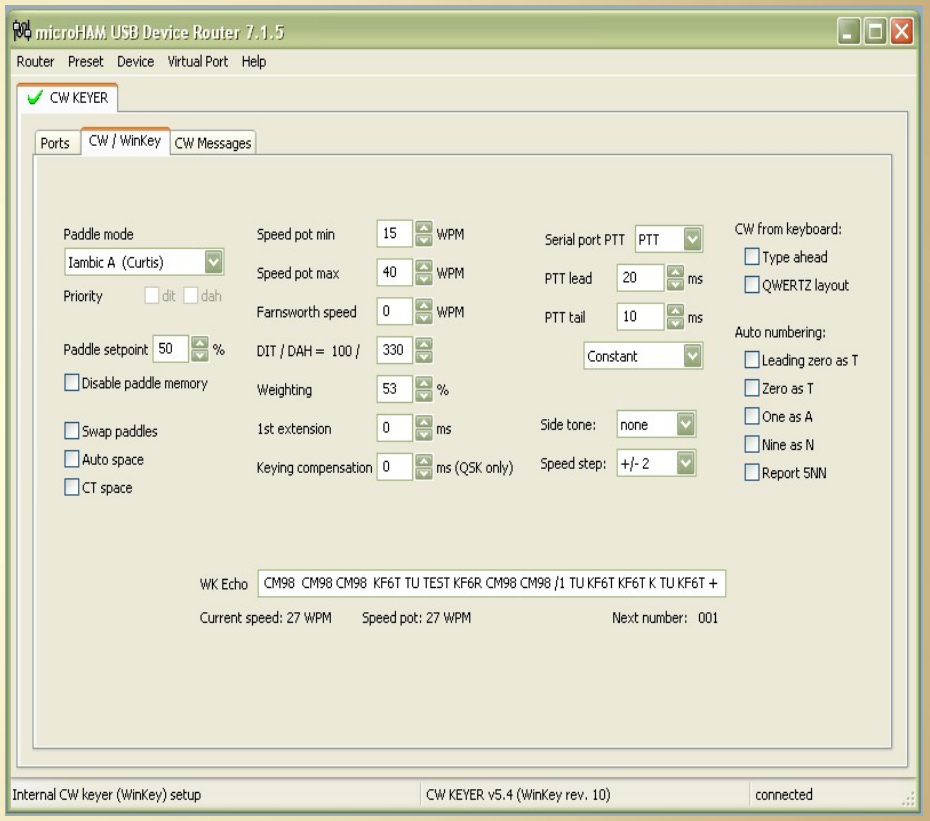






# MicroHam Router - Virtual comm port generator





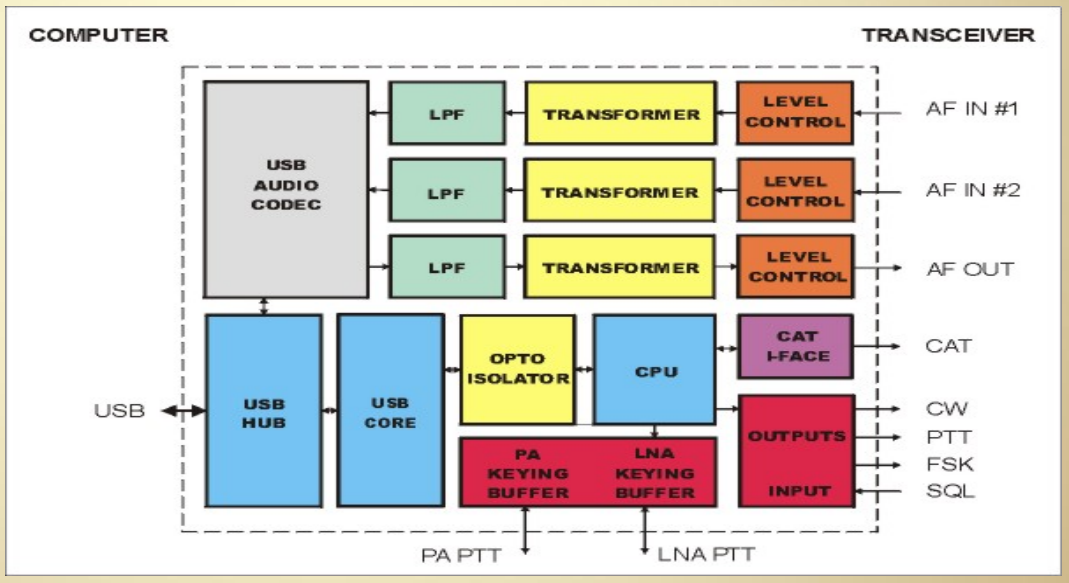
# Digital modes – USB Input – CW, FSK, Audio, PTT & CAT Outputs

## 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

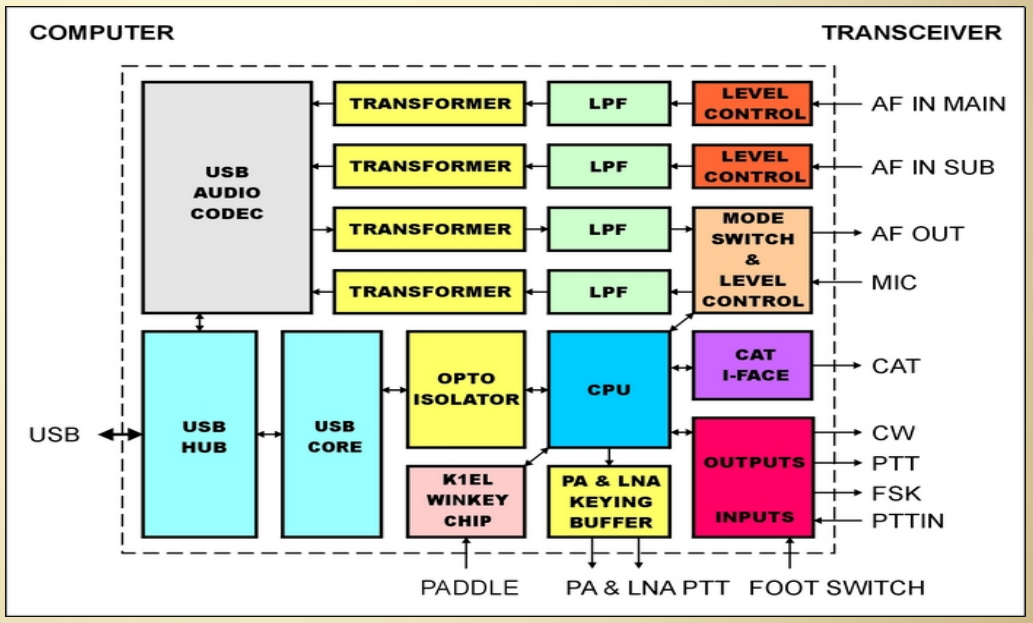
# CW/SSB & Digital modes – USB – CW, FSK, Audio, PTT & CAT Outputs

## 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 –

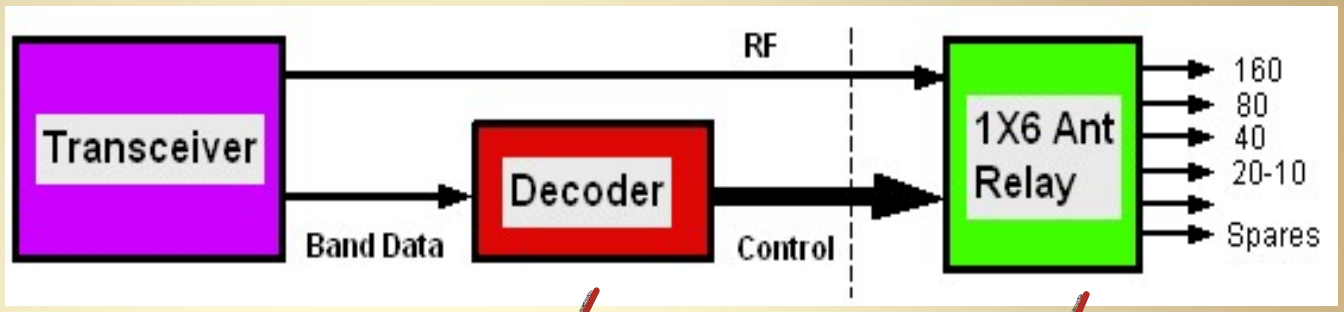
Auto or Manual Mode
Matrix output
Source and Sink outputs

**Model:** BD-X-SD
**COST:** $155

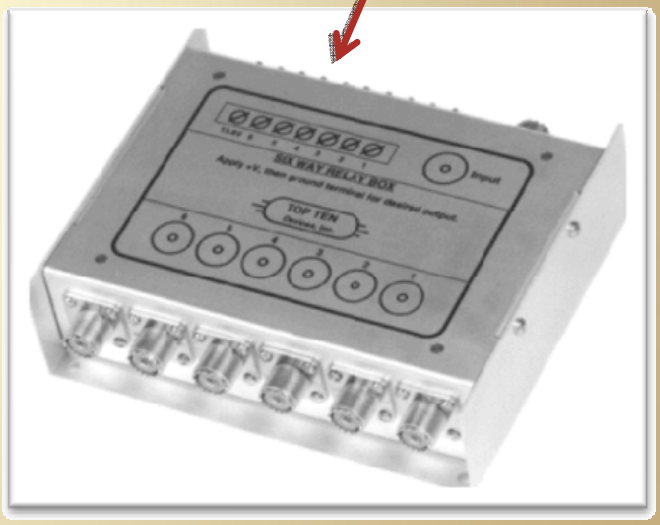
## Switch Features –

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

**COST:** $125
**Made by:** Top Ten Dev







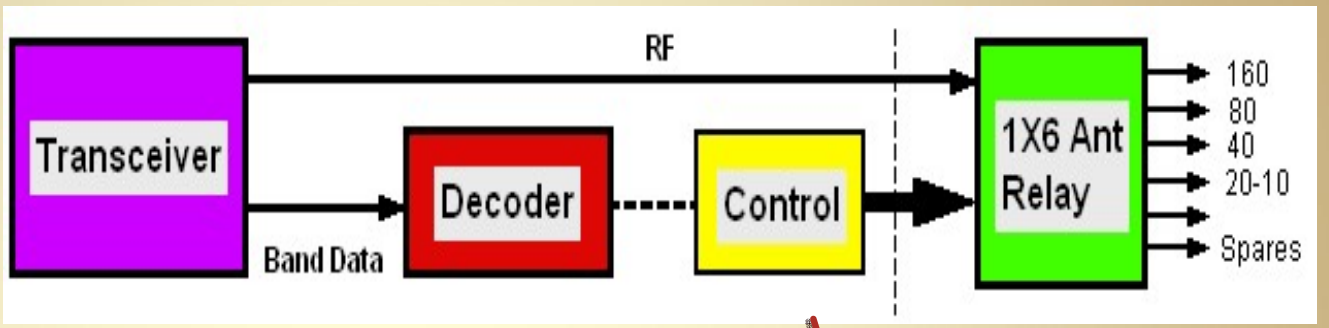
# Band Controller & Antenna Relay (1 X 6)

## 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




# 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

# 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

# Band Data Decoder – Icom, Yaesu, Elecraft Interface

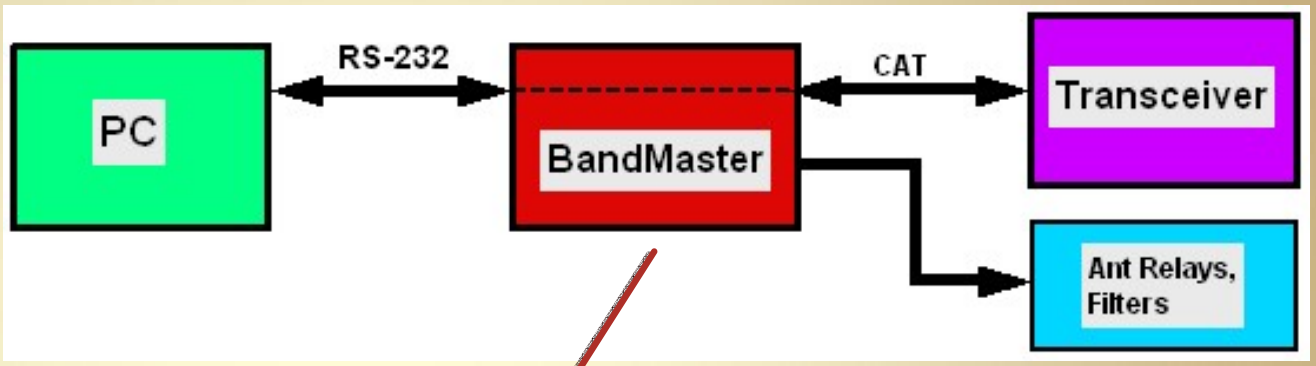
## Decoder Features –

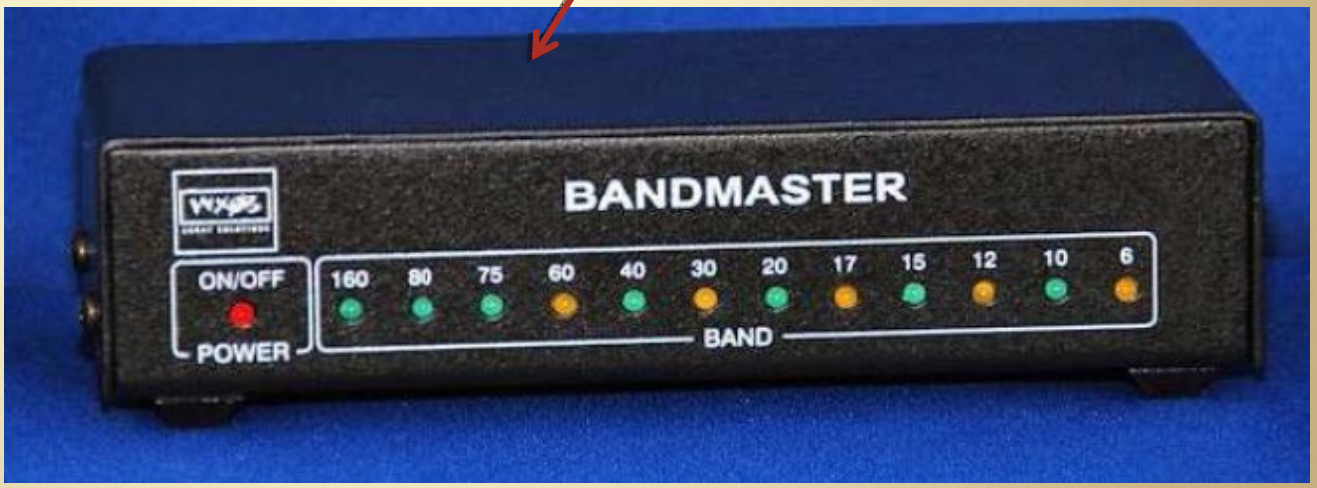
CAT Decoder
Radio pass thru to PC
Band Segment Software
Can split 80 and 75
Source and Sink outputs
Can generate CW/PTT

**Model:** Bandmaster

**COST:** $329 + Cable

**Made by:** Array Solutions



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

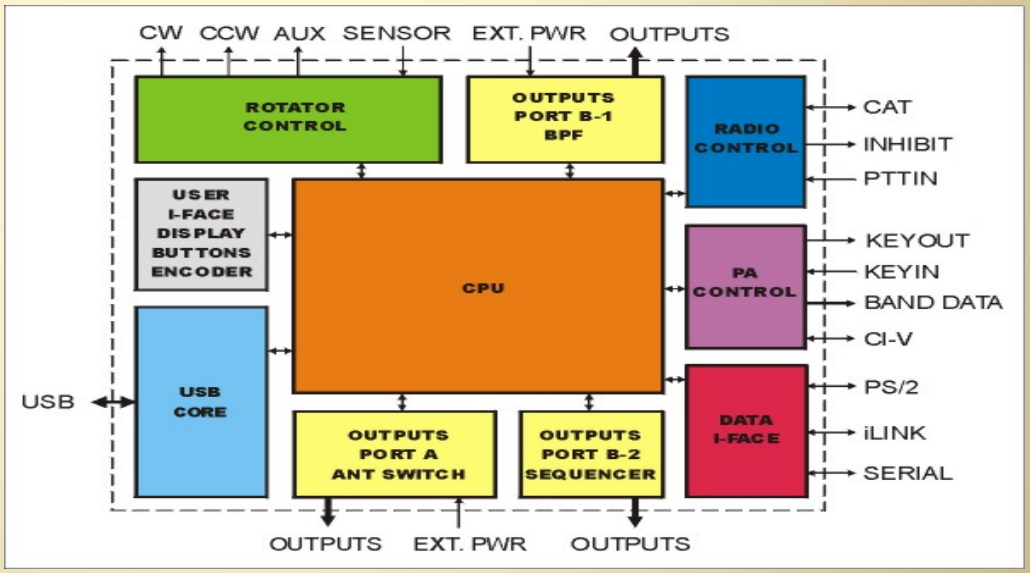
## Controller Features –

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

**Model:** Station Master

**COST:** $350 + Cable

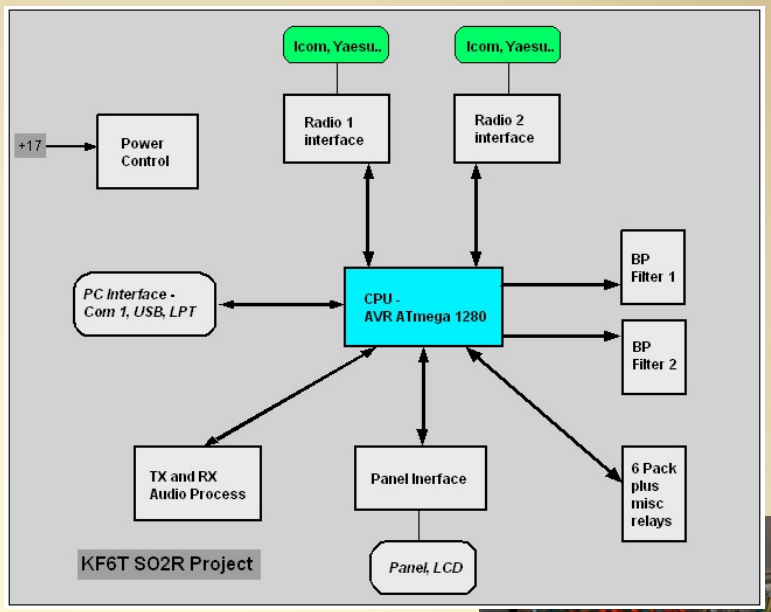
**Made by:** MicroHam

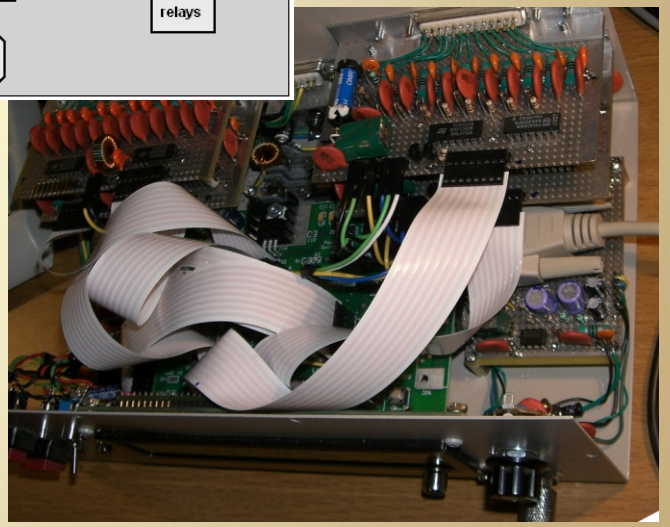
# KF6T Station Controller –

## 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







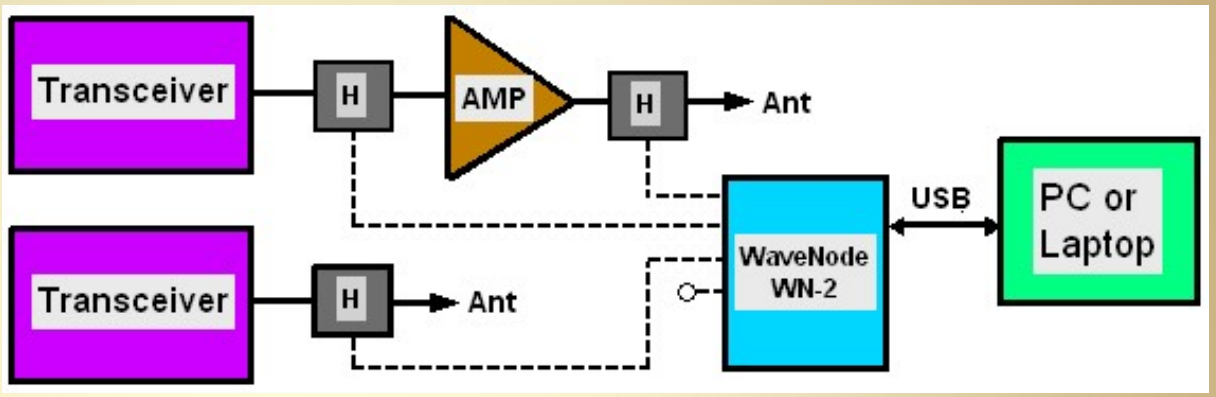
# Power Meter, multi channel – LCD and PC/Laptop Display

## 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