ICOM IC-905

Getting on the microwaves – is it the right rig for you?

Disclaimer – I have absolutely no connection to ICOM

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- Covers 2m, 70cm, 23cm - 10W output (12.5W measured)

- 13cm and 6cm – 2W output

- Optional 10 GHz transverter (2400 MHz I.F.) 0.5W output (Rumors of a 24 GHz module !!!!!)

- Control head links to remote RF unit via Ethernet cable – CAT5 or CAT6 – shielded preferred

- Utilizes standard POE+ to power remote RF unit (pins 4,5,7 and 8 on the RJ45)

RIG OVERVIEW (CONT.)

- Female SMA's for 13cm, 6cm, 3cm and I.F. link for 10 GHz transverter
- Female type N for 2m, 70cm and 23cm (combined)
- RJ45 for Ethernet – can be used with RS-BA1 remote control software(if they ever update RS-BA1 !!) Unlike the matching IC-705, there is no WiFi or Bluetooth interface
- Has USB C interface for CAT control and digital audio
- Creates two virtual serial ports, one for CAT and one for CW keying and PTT

- Rig operates off 13.8VDC @ 2ish amps (no internal battery like the IC-705)

- Built in step up power supply for POE+ which is 48VDC

- Like the IC-705, there is a ¼-20 threaded hole in the bottom to mount it to a camera tripod (or the aluminum protection frame from Amazon)

- BNC cable included for 10MHz connection to 10GHz transverter

- Tiny GPS antenna included**

- 36V, 30W LDMOS FET's for 2m, 70cm and 23cm

- Per band power output control

RIG OVERVIEW (CONT.)

- Uses 2.5mm TRRS for mic input and PTT and 3.5mm TRRS for speaker
- Uses 3.5mm TRS for PTT out/in and ALC input – ALWAYS USE A BUFFER ON THE PTT OUTPUT !!!!!
- Video in and out for FM ATV (is that even used any more??)
- ICOM finally added the ability to accept USB audio and live mic audio and audio by mode
- Built in GPS receiver with 10 MHz output to lock all bands
- GPS information is available – LAT/LON, elevation, speed, 6 digit grid square
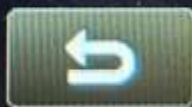
- VERY easy way to get on the microwave bands
- Very well engineered and amazingly intuitive menu system for setup - yes, I was SHOCKED at this!!!!
- Great for mountain-topping or roving.
- Mounting brackets for the remote RF units are by far the best I've ever seen. 1/8" thick stainless steel with more mounting holes than you know what to do with. There are slots where the modules mount so you mount the brackets first to your mast, then the modules just slip in and then you tighten the screws.

- For folks that don't have the time, expertise or desire to "roll your own"

- I picked up the 3cm transverter on my way to the Dayton Hamvention. With a DSE 60cm dish and dual band feed @ 25', Mike KA8ABR made the first contact with with W8BYA @ 105km at midday !!

- Rock stable, fast GPS lock up. The rig takes less than 15 seconds from power on to be stable listening to the W3IP beacon.

CON'S – AT LEAST AS I SEE THEM

- COST – YIKES !!!!! $4500 for a fully loaded unit with the 10GHz module

- No direct access to the CI-V buss to acquire operating frequency to roll your own. A USB interface using the USB-C would null the use of digital audio. This IC-705 can give CAT info via WiFi at the same time as the USB interface. The old IC-9100 had both USB and a serial CI-V jack

- While POE+ is a great way to power remote items, I'm concerned about 48V+close spaced contacts on an RJ45+moisture = BANG !!!! I've had several POE cameras arc the contacts just due to condensation!!

- Of course there is no 135cm, 33cm and strangely no 9cm although probably during the development of the rig, the FCC hadn't ruled on the 9cm band change.

- MO' power would have been nice but more than adequate for what the rig was intended for ?

- Fragile mic input connector and complicated interface – same as the IC-705 mic audio is muxed with function buttons

- Not a big fan of SMA's. Extra care needs to be taken to ensure they are wx-proof and they are fragile and can be snapped off.
- Individual connectors for 2m, 70cm and 23cm would have been nice
- The 3cm module will NOT operate without the 10MHz reference.
- No band data output or PTT per band ???

THOUGHTS ON EXPANSION

- I'm working with Andy, K1RA, to build a Ethernet interface to provide a per band output for amplifier keying and/or transverter keying for 33cm and 6cm

- 10Mhz output is VERY low, I measured -3dBm compared to my shack GPS with a DEMI 10-4 @ +13dBm and an old HP distribution amp @ +18dBm. Running the output of the 10MHz reference through a BNC tee then to the 3cm module and the other to a DEMI 10-4, locked the 3cm transverter and a DigiLO, so locking other devices is no problem

THOUGHTS ON EXPANSION

- Currently, I've built an add-on unit with an SG-LABs 144-902 transverter and an SG-LABs 430-3400 transverter using a Comet Triplexer to split out the 2m, 70cm and 23cm signals. The SG-Labs transverters both put out 3w and both have RF-sensing for PTT. I use a piece of RG8X as the power cable to supply 12V to this box. Using the 10 MHz reference from the IC-905 and a DEMI 10-4 distribution amp, I phase lock both the 902 and the 3400 transverters.

THOUGHTS ON EXPANSION

33cm/9cm IC-905 Add-on
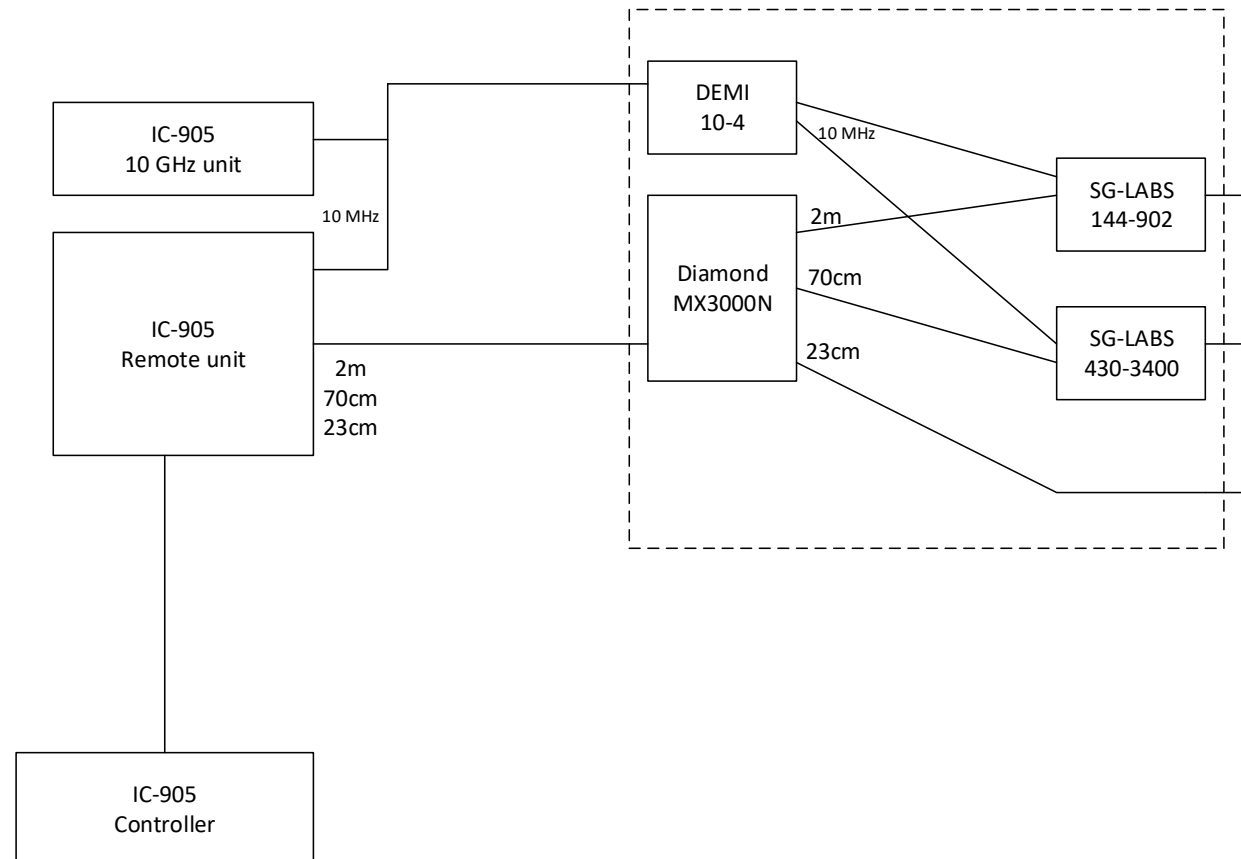
Completed add-on 902/3400 transverter box.
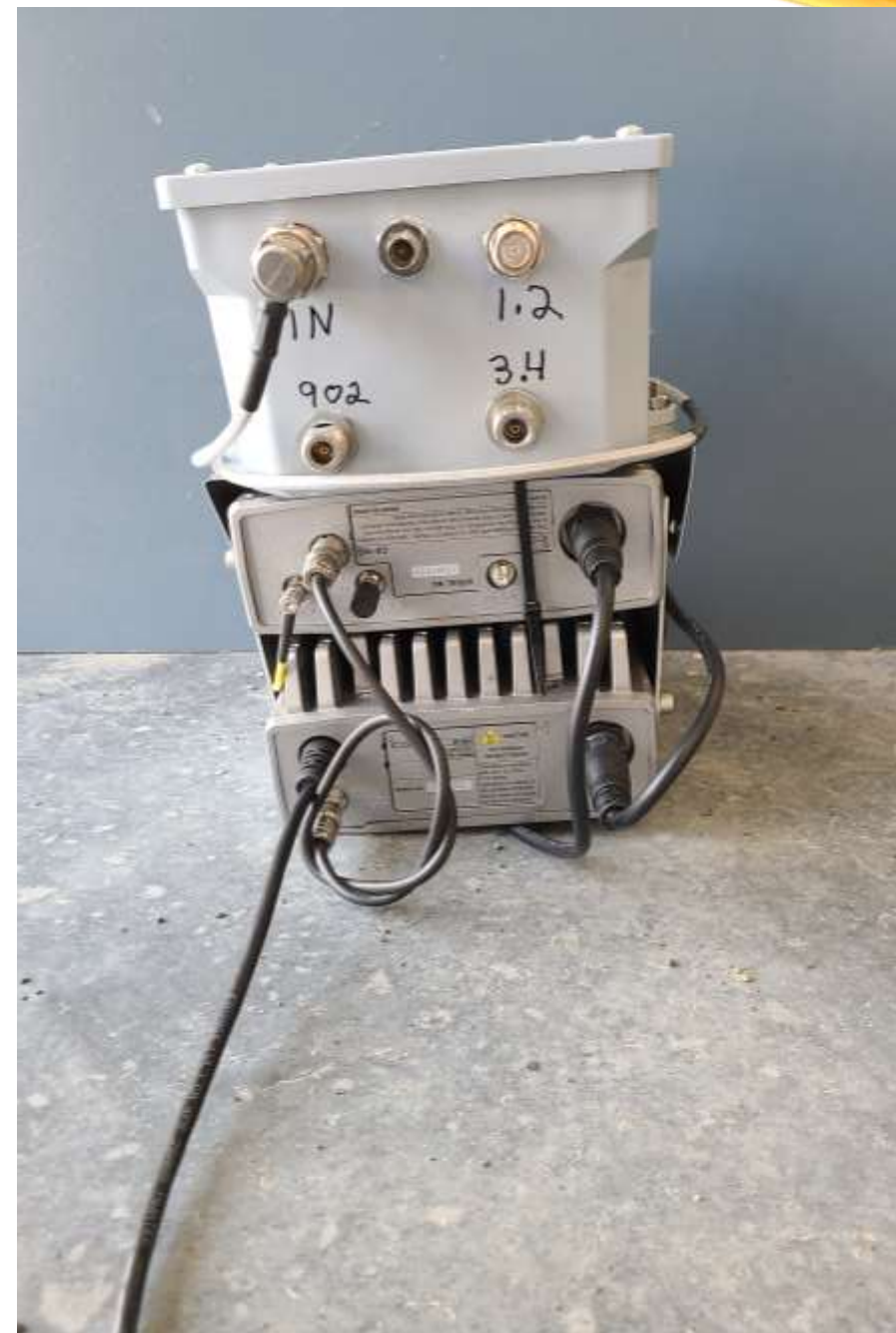
LET'S DO THE MATH - ROLL YOUR OWN

- 2m IF rig – FT817? $500
- Q5 1296 transverter - $600 (25w)
- DB6NT 13cm transverter - $525 (1w) covers 4 MHz at 2302, 2320, 2400
- DB6NT 6cm transverter – $752 (250mw)
- DB6NT 6cm 4w amp - $729
- DEMI 3cm transverter - $775 (3w)
- SMA relays for T/R - $200
- SMA relay for I.F. switching - $75
- WXPROOF box to put everything in - $200
- GPS for 10 MHz reference - $100
- Lots of SMA cables for interconnects - $100 hamfest pricing
- 40+ hours of labor to assemble
- Lots of cussing and pissed off XYL for the time you are spending!!
- $4556 guesstimate

LET'S DO THE MATH - IC-905

- Basic rig, 2m, 70cm, 23cm, 13cm, 6cm - $3500 covers entire band segments
- 3cm transverter - $1000
- 150ft shielded CAT6 Ethernet cable with 23AWG conductors - $100
- Dinner for two at your favorite steakhouse with the XYL - $60
- $4660 – take it out of the box, plug it in and make contacts!!!

THANKS AND 73 ALL !!!!