Radio Interface
(APRS 209)

Interkoneksi Radio ke APRS Tracker

Suryono Adisoemarta
YD0NXX / N5SNN

Tujuan

- Kompilasi interface di radio
- Mempermudah pembuatan kabel dari tracker

Daftar Isi

- TNC / Tracker
- Alinco
- Icom
- Kenwood
- Motorola
- Yaesu
- Weather Station
- Weierwei / Baofeng / Pofung (HT Cina)

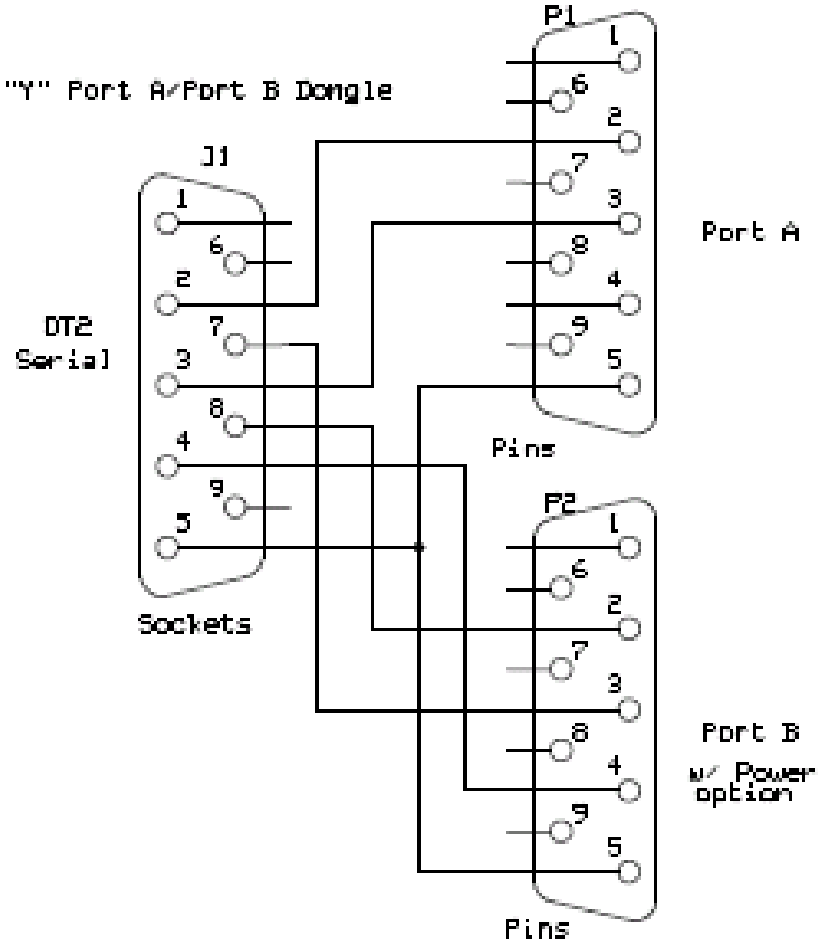
Pin-Out dari TNC / Tracker

- Tabel pin-out dari:
  - **TNC2**: KPC3(+) / KPC9612(+)
  - **Tracker**: TinyTrak3, OpenTracker, OpenTracker+, Tracker2

Pin	Function
1	Audio Out
2	COR / Squelch Input
3	PTT Output
4	Configuration select
5	Audio In
6	Ground
7	Power in
8	PTT Input
9	No Connection

OT2m Serial Split Cable

- OT2m memiliki dua serial port dalam 1 DB9
- Perlu membuat serial split cable



T2-135 Serial Split Cable

- Memindahkan DATA port panel depan dan digabung di serial port di DB9 belakang DR135
  - Radio DB9
    - 1 → 3 Data Out – Serial 2
    - 2 ← 2 Data In – Serial 1
    - 3 → 3 Data Out – Serial 1
    - 5 – 5 Ground – Serial 1 and 2
    - 8 – 8 5v line – Serial 1
      7 5v line – Serial 2
    - 9 ← 2 Data in – Serial 2
- Perlu modifikasi di board T2-135
  - Solder jumper dari P11 di CN2 ke P8 di CN1
  - Potong kabel TXD di P10 di konektor CN2 yang ke DR135, dan solder ke P4 di CN1

Alinco DR-130/135

- Konvensional
  - Konektor MIC – didepan
    - Pin 1: Mic In
    - Pin 2: PTT
    - Pin 6: Audio Out (atau lewat Spk Out)
    - Pin 8: Ground
  - Speaker Out – dibelakang
    - Audio in di tracker
- Data Port (dibelakang, DR135 saja)

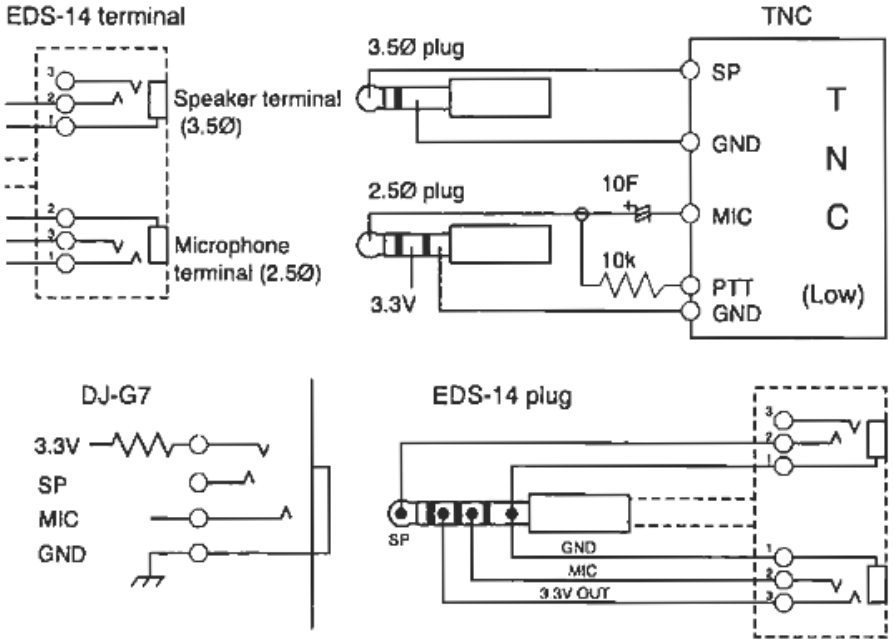
Alinco DR135

- Data Port (DB9 dibelakang)
  - No internal TNC

Tracker/TNC DB9M			DR135 DB9 Port DB9M	
Pin#	Signal		Pin#	Signal Name
1	Audio Out	→	9	DATA Input
3	PTT	→	7	PTT signal input
5	Audio In	←	4	DATA Output
6	Ground	←→	5	Ground

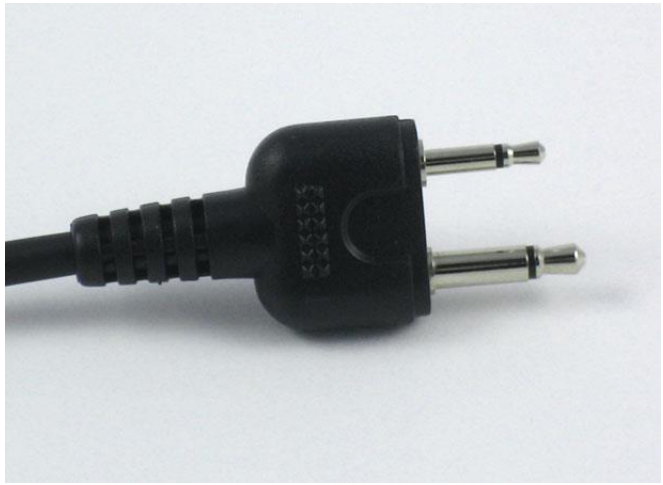
Alinco G7T

- 3-band handheld (2m / 70cm/ 1.2 GHz)
  - Menggunakan EDS-14 (3-stripe plug)



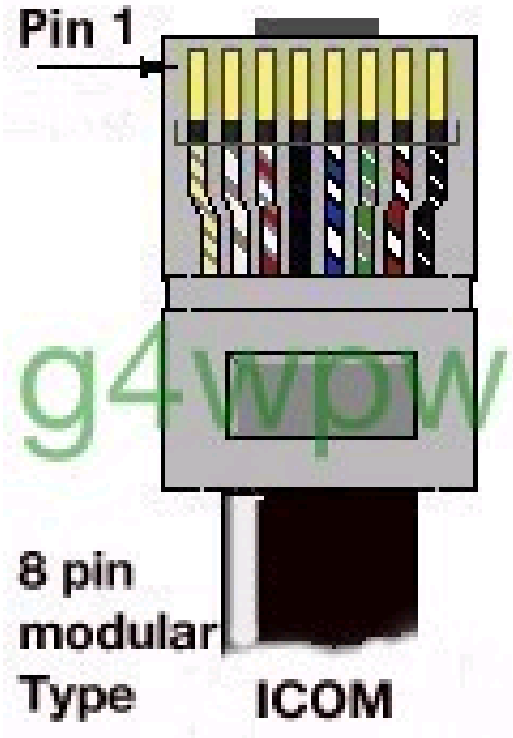
Icom IC-2N/02A/02AT

- Konektor 3.5 mm dan 2.5 mm
  - 3.5mm – Tip: Audio Out
  - 3.5mm – Ring: Ground
  - 2.5mm – Tip: Mic In
  - HT Jumper: installed

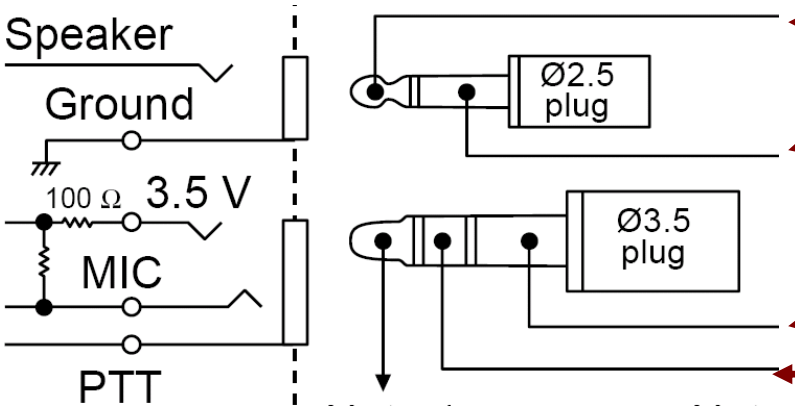


ICOM - RJ45 Modular Plug

- RJ45 Mic:
  - PIN1 + 8VOLT
    (10 ma max - DO NOT USE!)
  - PIN2
  - PIN3
  - PIN4 PTT
  - PIN5 MIC GROUND
  - PIN6 MIC
  - PIN7 GROUND/EARTH
- Speaker Jack Rear Panel:
  - Audio Out

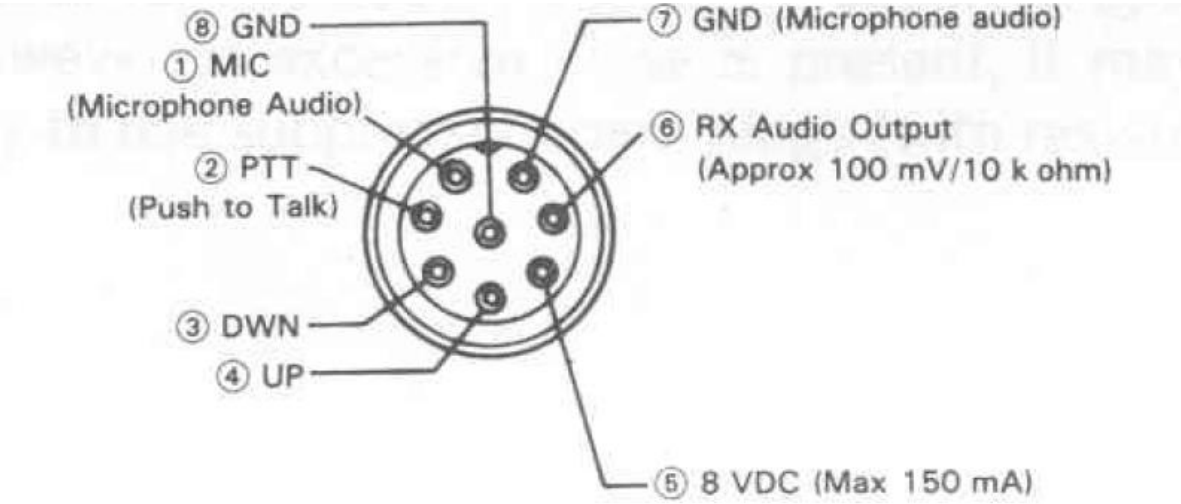


Kenwood – Handheld (HT)



- Plug Stereo Kecil
  - Tip: Audio Out (5)
  - Base: Ground (6)
- Plug Stereo Besar
  - Base: PTT (3)
  - Ring: Mic in (1)
- HT Jumper is OFF

Kenwood TM-241 (Mobile Rig)



OT2m 241	Signal
1 → 1	Mic Audio
3 --- 2	PTT
5 ← 6	RX audio output
6 --- 8	Ground
7 ← 5	Vcc (8V)

Kenwood TM-271

- Via Front Panel
- Via board solder pads

Kenwood TR-7950

- Modifikasi audio out supaya keluar di front jack:
  - Remove top cover of transceiver and carefully disconnect speaker lead plug from "rx unit" board.
  - Locate plugs"j-13" on the right front of the "rx unit" board and "j-18" on the left rear side of the board.
  - Notice which wire goes to pin "8-m" on "j-13" and to pin #5 on the mic connector.
  - Remove plug "j-13" from the board and locate the spring tab on the side of the plug that holds the "8-m" connector in place.
  - Using a small awl or pointed tool, press the tab down and carefully pull the "8-m" connector from the plug.
  - Work the wire from the harness so it will reach back along the left side of the board to plug "j-18".
  - Using the awl or small pointed tool, carefully spread the "8-m" connector a slight amount so it can be fitted Like a sleeve over another connector of the same size.
  - locate terminal "ap" on plug "j-18".
  - Insert the spread terminal "8-m" into the top of plug "j-18" so it fits around the top of terminal "ap". This is a fairly tight fit, so use care not to bend the terminals by using too much pressure.

- Pin-out
  - 1 – Audio In
  - 2 – PTT
  - 5 – Audio Out
  - 6 - Ground

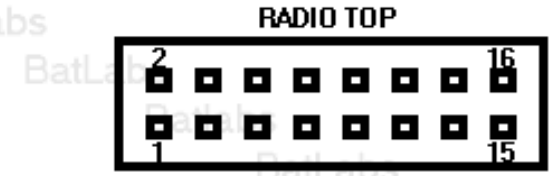
Motorola – GM350 / GM950

- Gunakan 16-pin Accessory Plug

Moto	-	DB9 male
2	-	1 TX Audio
3	-	3 PTT
7	-	6 Ground
11	-	5 RX Audio

Catatan:

- Jika diperlukan, reprogram Pin 3 di Acc Plug menjadi PTT



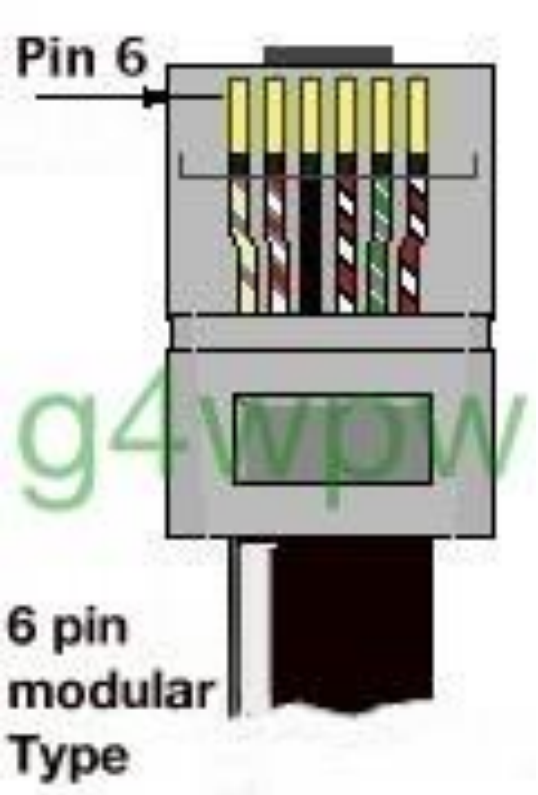
ACCESSORY CONNECTOR
LOOKING AT BACK OF RADIO

1 EXT SPKR -	9 EMERGENCY ALARM
2 MIC AUDIO	10 IGNITION CONTROL
3 MIC PTT	11 RX AUDIO
4 EXTERNAL ALARM	12 PROG I/O 12
5 FLAT TX AUDIO	13 SW A+ SENSE
6 PROG I/P 6	14 PROG I/O 14
7 GROUND	15 INT SPKR +
8 PROG I/O 8	16 EXT SPKR +

Ref: ww.batlabs.com/images/maxacc.gif

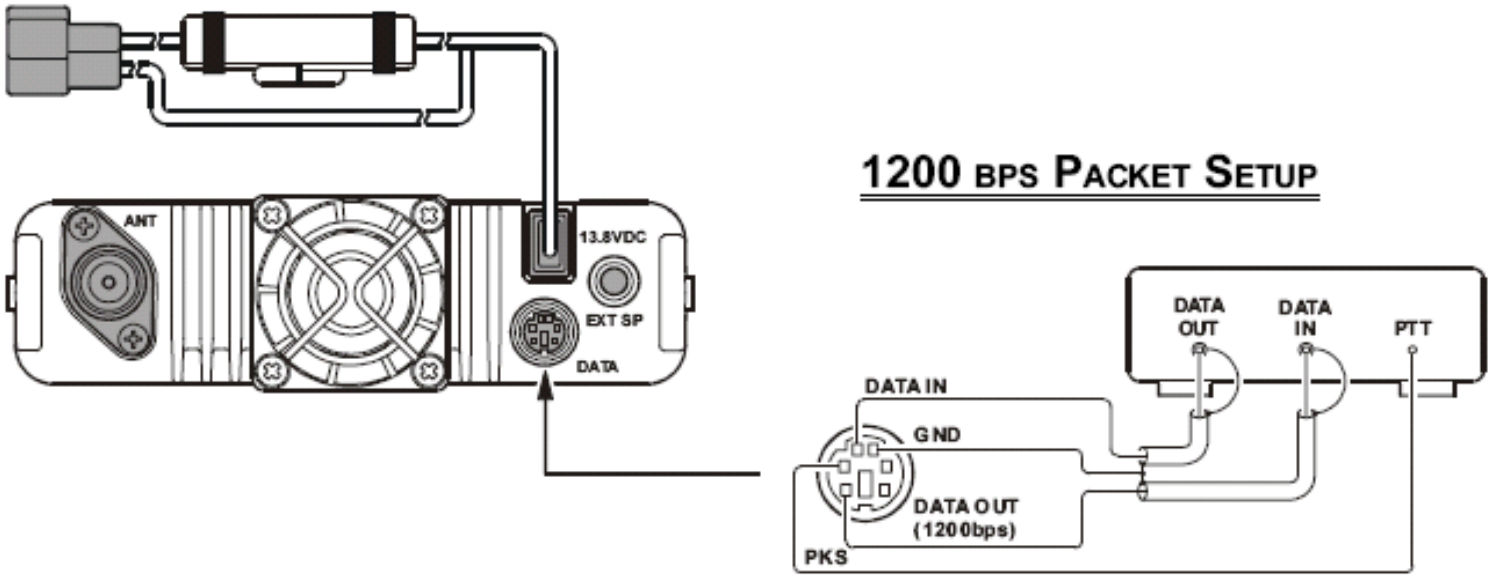
YAESU 6-Pin Modular Plug

- FT1500-FT1802E-FT2800-FT7800M-FT8800E-FT8900R
  - Pin3 + 8 Volt
  - Pin4 Ground
  - Pin5 Mic
  - Pin6 PTT



Mini-DIN 6 Port

- Mini-DIN Data Port dibelakang
- FT-7800

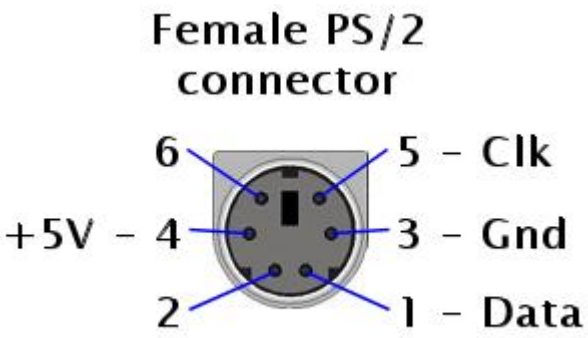


Mini-DIN 6

DATA	PIN No.	NAME	DESCRIPTION
 Rear panel view	1	DATA IN	Input terminal for data transmit. (1200 bps: AFSK/9600 bps: G3RUH, GMSK)
	2	GND	Common ground for DATA IN, DATA OUT and AF OUT.
	3	PTT P	PTT terminal for packet operation. Connect to ground to activate the transmitter. When grounded, microphone input (pin 6) of [MIC] connector will be disconnected.
	4	DATA OUT	Data out terminal for 9600 bps operation only.
	5	AF OUT	Data out terminal for 1200 bps operation only.
	6	SQL	Squelch out terminal. This pin is grounded when the transceiver receives a signal which opens the squelch. • To avoid interfering transmissions, connect squelch to the TNC to inhibit transmission when squelch is open. • Keep RF gain at a normal level, otherwise a "SQL" signal will not be output.

DB9M

	Pin#	Signal
←	1	Audio Out
---	6	Ground
←	3	PTT
→	5	Audio In



Yaesu HT

- vx-170/vx-120/vx-7r/vx-6r/vx-5r
- Konektor 4-conductor 3.5mm
  - Tip = Speaker
  - Ring1 = nc (for Data/Clone)
  - Ring2 = Mic and PTT (thru 2k resistor)
  - Ring3 = Ground
- HT Jumper is ON

Yaesu HT

- FT-10/FT-40R/FT-50R/FT-60R
- Konektor 3-conductor 3.5mm
  - Tip = Speaker (Pin 5 on tracker)
  - Ring1 = Mic (Pin 1 on tracker)
  - Base = Ground (pin 6 on tracker)
- HT Jumper is ON

Weather Station

- LaCrosse WS 2317 ke OT2m

OT2m Box DB9F		LaCrosse 23xx Side DB9M	Signal
2	←	2	Data Out from WS
3	→	3	Data In to WS
4	---	7	Positive Ref
5	---	4	Ground

- LaCrosse WS 2317 ke T2-135
  - Direct connect, no split-cable

Radio Side DB9F		LaCrosse 23xx Side DB9F	Signal
2	←	3	Data Out from WS
3	→	2	Data In to WS
8	---	7	Positive Ref
5	---	4	Ground

Weierwei / Baofeng / Pofung

- Plug Stereo Besar (3.5 mm)
  - Tip: tidak dipakai
  - Ring: Mic in
  - Base: PTT
- Plug Stereo Kecil (2.5 mm)
  - Tip: Audio Out
  - Ring: tidak dipakai
  - Base: Ground
- HT Jumper is OFF

Referensi

- http://www.tigertronics.com/bay_wire.htm
- http://www.buxcomm.com
- http://homepage.ntlworld.com/rg4wpw/date.html
- http://garlandr.s412.sureserver.com/graces/Tech-Info.html
- http://www.radiomods.co.nz/kenwood/kenwoodtr7950.html
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